


T 377  
.C9  
Copy 1

1904

CATALOGUE  
H. S.   
CROCKER  
COMPANY  
DRAWING &  
SURVEYING  
MATERIALS



T  
377  
.C9

SAN FRANCISCO  
& SACRAMENTO

# L. & C. HARDTMUTH'S TRACING CLOTHS

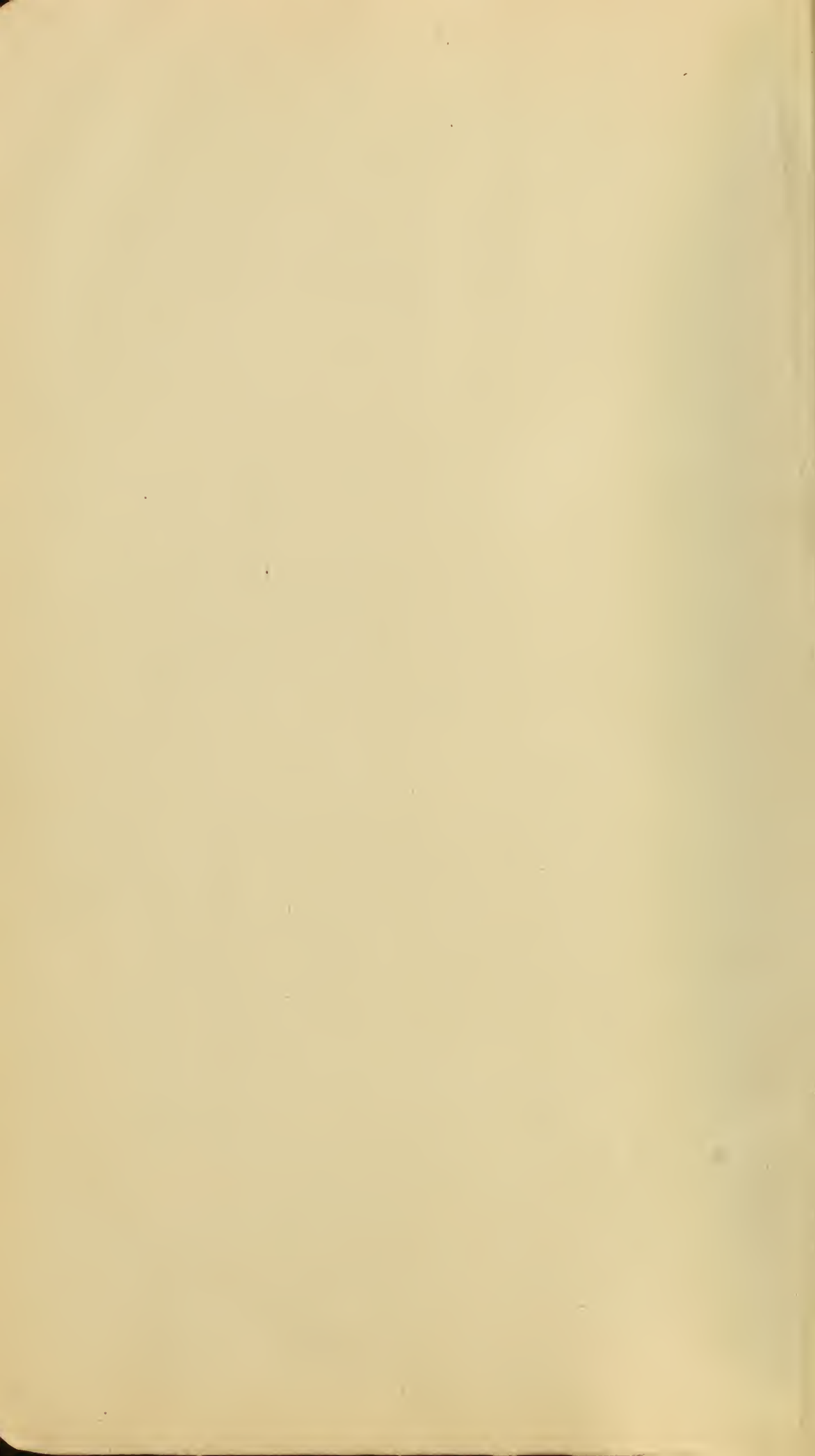
IN ROLLS OF TWENTY-FOUR YARDS.

"KOH-I-NOOR"



"MEPHISTO"







1904



Catalogue *and* Price List  
*of* Drawing Materials *and*  
 Surveyors' Instruments

---



H. S. CROCKER COMPANY

:: :: Manufacturers and Importers :: ::

SAN FRANCISCO :: :: SACRAMENTO

TRADE



MARK

LIBRARY of CONGRESS  
Two Copies Received  
MAR 17 1904  
Copyright Entry  
Ser. 15-1904  
CLASS 2 XXC. No.  
80541  
COPY B

T 977  
B 9  
C/S

*NOTICE TO THE TRADE*

*OWING to the variety of goods we handle, we cannot quote a uniform discount, but special prices will be furnished upon receipt of the number and quantity of articles desired. Prices and discounts are continually changing, and new goods are constantly being put on the market. Our patrons can be assured they will always receive the benefit of any decline in values, and the lowest prices on all new goods.*

*H. S. CROCKER COMPANY*

H. S. CROCKER COMPANY

SAN FRANCISCO  
AND  
SACRAMENTO



215-217-219 Bush Street  
SAN FRANCISCO, CAL.

## NOTICE.

---

In ordering by this Catalogue give number, and in some instances it is necessary to give size, color, etc.

As we use every precaution in the packing of goods, no allowance can be made if goods are damaged either in direct shipments or in enclosures through other houses.

We cannot be responsible for goods lost or damaged in transmission by mail. In all cases where no shipping directions are given, we send goods according to our best judgment.

Remittances are in all cases at the risk of the sender.

Boxes, if required for packing, will be charged at cost.

We do not claim our goods to be the best in the world, but we respectfully solicit a trial order as the best means to prove the quality of them.

If customers have any cause for complaint, even after goods have been paid for, they are particularly requested to send prompt notice thereof, so that the matter may be satisfactorily adjusted.

*Prices subject to change without notice.*

H. S. CROCKER COMPANY.



# DRAWING PAPERS

## IN SHEETS.

### WHATMAN'S HAND MADE.

Whatman's Papers are considered the finest manufactured, and are made with three different styles of surface:

**HP. Hot Pressed**, has a smooth surface; used for pencil and fine line drawings.

**CP. Cold Pressed**, has a finely grained surface; used for general purposes and water-color drawing.

**R. Rough**, has a coarsely grained surface; used for very bold drawing and sketching.

In ordering specify the surface, HP., CP. or R., and the size.

The smallest size is the lightest in weight, the larger the size the heavier the paper. We import and sell only the best quality of Whatman's hand-made papers.

1. Whatman's, with "HP." or "CP." surface. Selected Best.

Cap . . . . .	13 × 17 in. . . . .	per quire \$	.60
Demy . . . . .	15 × 20 " . . . . .	"	.90
Medium . . . . .	17 × 22 " . . . . .	"	1.25
Royal . . . . .	19 × 24 " . . . . .	"	1.55
Imperial . . . . .	22 × 30 " . . . . .	"	2.60
Double Elephant.	27 × 40 " . . . . .	"	4.80
Antiquarian . . . . .	31 × 53 " . . . . .	"	18.50
" . . . . .	31 × 53 " . . . . .	per sheet	1.00

2. Whatman's, with "R." surface. Selected Best.

Royal . . . . .	19 × 24 in. . . . .	per quire	\$1.80
Imperial . . . . .	22 × 30 " . . . . .	"	2.60
Double Elephant.	27 × 40 " . . . . .	"	4.80

For Mounted Whatman's Papers see page 12.

Samples sent on application.

**DRAWING PAPERS—Continued.**

3. **American Drawing Paper**, carefully sized, slightly grained surface, especially adapted for school purposes.

The smallest size is the lightest in weight, the larger the size the heavier the paper.

No. 19 is the same paper in rolls.

Cap . . . . .	14 × 17 in. . . . .	per quire	\$ .15
Demy . . . . .	16 × 21 " . . . . .	"	.20
Medium . . . . .	18 × 23 " . . . . .	"	.35
Royal . . . . .	19 × 24 " . . . . .	"	.45
Super Royal . . . . .	19 × 27 " . . . . .	"	.55
Imperial . . . . .	22 × 30 " . . . . .	"	.65
Double Elephant . . . . .	27 × 40 " . . . . .	"	1.20

4. **Encina Drawing Paper**, very carefully sized, has excellent erasing properties, takes ink and color perfectly, and is especially adapted for college and school work. Each sheet watermarked.

No. 30 is the same paper in rolls.

The various sizes are of different thickness, the smallest being the lightest and the others heavier as they increase in size.

Cap . . . . .	14 × 17 in. . . . .	per quire	\$ .50
Demy . . . . .	15 × 20 " . . . . .	"	.60
Medium . . . . .	17 × 22 " . . . . .	"	.80
Royal . . . . .	19 × 24 " . . . . .	"	1.20
Super Royal . . . . .	19 × 27 " . . . . .	"	1.30
Imperial . . . . .	22 × 30 " . . . . .	"	1.65
Double Elephant . . . . .	27 × 40 " . . . . .	"	2.50

5. **Avalon Drawing Paper**, a buff colored paper for preliminary work and general drawings, stands erasing perfectly and takes ink, pencil and water color exceedingly well. Its color permits of handling the paper without soiling, and is very agreeable to the eye. No. 20 is the same paper in rolls.

Royal . . . . .	19 × 24 in. . . . .	per quire	\$1.10
Imperial . . . . .	22 × 30 " . . . . .	"	1.60

6. **Sequoia.** A Drawing Paper of superior quality with smooth surface for line drawings in ink or pencil, has excellent erasing properties and is very tough.

Imperial . . . . .	22 × 30 in. . . . .	per quire	\$2.70
Double Elephant . . . . .	27 × 40 " . . . . .	"	4.00

Samples sent on application.

## SUPERIOR BRISTOL BOARDS.

7. Reynold's White Bristol Board, smooth surface.

		2 sheets	3 sheets	4 sheets
Cap.....	12½ × 15¼ in..... per dozen	\$ .60	\$ .90	\$1.20
Demy .....	14⅝ × 18¼ " .... "	.90	1.35	1.75
Medium ...	16½ × 20¾ " .... "	1.20	1.80	2.40
Royal .....	18¼ × 22¾ " .... "	1.50	2.40	3.10



This Bristol Board has a hard surface, possesses unlimited erasing properties. It has the thickness, color, quality and size required by the U. S. Patent Office.

8. Patent Office Bristol Board, 3 sheet, blank.

10 × 15 in.....	per dozen	\$ .60
15 × 20 " .....	"	1.20

9. Patent Office Bristol Board, 3 sheet, printed with border, etc.

10 × 15 in.....	per dozen	\$ .70
-----------------	-----------	--------

## DETAIL PAPERS.

A jute manila paper for pattern and rough drawing purposes. The rolls are from 50 to 75 pounds.

10. Medium weight, slightly grained surface.

36 in. wide.....	per 10-yard roll	\$ .25	per pound	\$ .08
42 " .....	"	.30	"	.08
48 " .....	"	.35	"	.08

11. Heavy Weight, slightly grained surface.

36 in. wide.....	per 10-yard roll	\$ .35	per pound	\$ .08
42 " .....	"	.40	"	.08
48 " .....	"	.45	"	.08

Samples sent on application.

**DETAIL PAPERS—Continued.**

12. **Laguna.** An extra grade of detail paper with a grained surface. Equal almost to a drawing paper. Color is light buff.

Medium weight.	Per 10-yard rolls.	Per 50-yard rolls.	Per pound.
36 in. wide.....	\$ .55	\$2.25	\$ .13
42 " .....	.70	2.75	.13
48 " .....	.85	3.25	.13

14. **Heavy Weight.**

36 in. wide.....	\$ .70	\$2.75	\$ .13
42 " .....	.90	3.50	.13
48 " .....	1.10	4.25	.13

**SMOOTH MANILA.**

Four Weights: X medium, XX Heavy, XXX heavier, XXXX heaviest, and in widths of 36, 42, 48, 54 inches, per pound..... \$ .10

In ordering specify thickness required.

16. **English Parchment,** best quality genuine parchment, made of animal skin.

14 × 18 in.....	per dozen	\$5.50	per sheet	\$ .50
15 × 20 " .....	"	6.00	"	.60
16 × 20 " .....	"	7.20	"	.70
16 × 22 " .....	"	8.40	"	.80
18 × 24 " .....	"	9.00	"	.90

17. **White Mounting Board,** in sheets, 22 × 28 in.

4 Ply .....	per dozen	\$ .50	per sheet	\$ .05
6 " .....	"	.75	"	.07
8 " .....	"	.85	"	.08
10 " .....	"	1.00	"	.10

18. **Paragon Bristol Board,** in sheets, 22 × 28 in.

4 Ply .....	per dozen	\$ .75	per sheet	\$ .08
6 " .....	"	1.00	"	.10
8 " .....	"	1.20	"	.12
10 " .....	"	1.50	"	.15

**DRAWING PAPER IN ROLLS.**

19. **American Drawing Paper,** carefully sized, with slightly grained surface, especially adapted for school use. In continuous rolls of about 30 pounds.

	Per pound.	Per 10-yard roll.	Per yard.
36 in. wide.....	\$ .15	\$ .80	\$ .10
42 " .....	.15	1.00	.15

No. 3 is the same paper in sheets.

Samples sent on application.

# DRAWING PAPERS.

CONTINUOUS IN ROLLS.

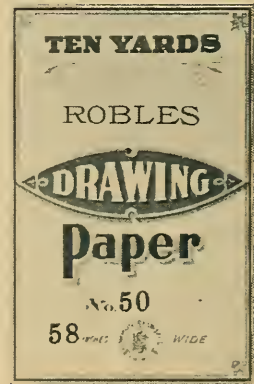
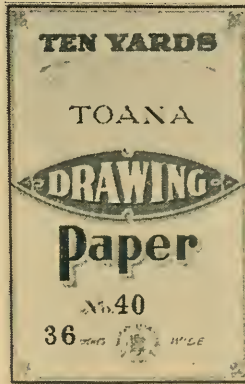
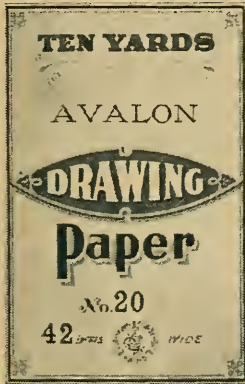
The rolls are from 40 to 60 pounds.

**Avalon.**

**Encina.**

**Toana.**

**Robles.**



Reduced facsimiles of labels of our Drawing Papers.

These papers are manufactured exclusively for us, and are watermarked along the edges.

20. **Avalon**, buff color. A paper for preliminary and general drawings; it is very tough, uniform in grain and finish; takes ink or pencil very readily and stands erasing perfectly; its buff color is agreeable to the eye and stands considerable handling without soiling.

	Per pound.	Per 10-yard roll.	Per yard.
30 in. wide. ....	\$ .33	\$1.20	\$ .13
36 " .....	.33	1.35	.15
42 " .....	.33	1.75	.20
56 " .....	.33	2.25	.25

No. 5 Avalon is the same paper in sheets.

30. **Encina**, a paper very carefully sized, with slightly grained surface, takes ink, pencil or crayon and is specially adapted for preliminary drawings; it is used largely by Technical Schools and Universities.

	Per pound.	Per 10-yard roll.	Per yard.
36 in. wide .....	\$ .36	\$1.70	\$ .20
42 " .....	.36	2.00	.25
56 " .....	.36	3.00	.35
62 " .....	.36	3.40	.40

No. 4 is the same paper in sheets.

Samples sent on application.

# DRAWING PAPERS.

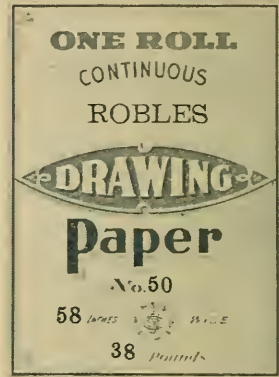
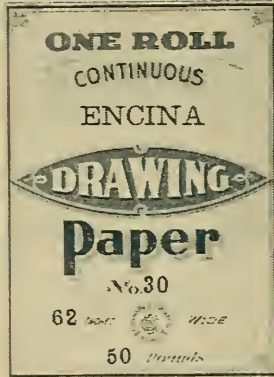
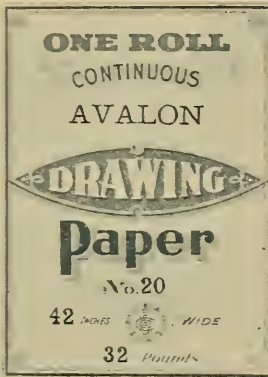
CONTINUOUS IN ROLLS.

**Avalon.**

**Encina.**

**Toana.**

**Robles.**



Reduced facsimiles of labels of our Drawing Papers.

40. **Toana**, a very tough and pliable paper, used when drawings are subject to rough handling.

	Per pound.	Per 10-yard roll.	Per yard.
36 in. wide .....	\$ .48	\$2.50	\$ .30
42 " .....	.48	3.00	.35
62 " .....	.48	4.50	.50

Robles, made of the very best stock, pure white, principally adapted for perspective drawings and water-color work. The best paper for County Map work.

50. **Robles**, medium, rough.

	Per pound.	Per 10-yard roll.	Per yard.
36 in. wide .....	\$ .54	\$3.00	\$ .35
42 " .....	.54	3.50	.40
58 " .....	.54	4.50	.50

52. **Robles**, thick, rough.

58 in. wide .....	.54	5.75	.65
-------------------	-----	------	-----

53. **Robles**, extra thick, rough.

58 in. wide .....	.54	7.20	.80
-------------------	-----	------	-----

55. **Robles**, medium, smooth.

58 in. wide .....	.54	4.50	.50
-------------------	-----	------	-----

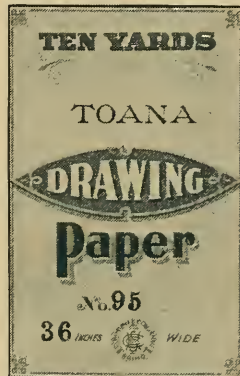
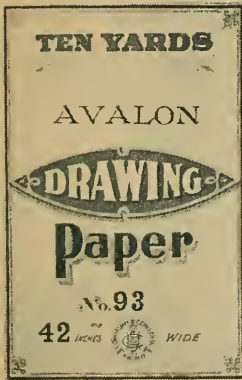
56. **Robles**, thick, smooth.

58 in. wide .....	.54	5.75	.65
-------------------	-----	------	-----

Samples sent on application.

# CONTINUOUS DRAWING PAPERS. MOUNTED ON MUSLIN.

In rolls of 10 yards.



Reduced facsimiles of labels of our Drawing Papers.

Our papers are mounted stretched. As the mounting obscures the watermarks, we stamp the paper when mounted with its name in red ink along the edge of each roll.

## 90. Encina.

36 in. wide	..... per 10-yard roll	\$ 5.40	per yard	\$ .70
42 "	..... "	6.80	"	.85
56 "	..... "	9.50	"	1.20
62 "	..... "	11.80	"	1.50

No. 90 is No. 30 mounted. For description of paper see page 9.

## 93. Avalon.

36 in. wide	..... per 10-yard roll	\$ 5.40	per yard	\$ .70
42 "	..... "	6.80	"	.85
56 "	..... "	9.50	"	1.20

No. 93 is No. 20 mounted. For description of paper see page 9.

## 95. Toana.

36 in. wide	..... per 10-yard roll	\$ 6.80	per yard	\$ .85
42 "	..... "	8.20	"	1.00
62 "	..... "	13.25	"	1.60

No. 95 is No. 40 mounted. For description of paper see page 10.

## 100. Robles

36 in. wide	..... per 10-yard roll	\$ 7.50	per yard	\$ .95
42 "	..... "	8.85	"	1.10
58 "	..... "	11.75	"	1.40

No. 100 is No. 50 mounted. For description of paper see page 10.

Samples sent on application.

**MOUNTED DRAWING PAPERS—Continued.**

102. Robles.

58 in. wide..... per 10-yard roll \$13.00 per yard \$1.50

105. Robles.

58 in. wide..... " 11.75 " 1.30

106. Robles.

58 in. wide..... " 13.00 " 1.50

Nos. 102, 105, 106 are respectively Nos. 52, 55, 56 mounted. For description of paper see page 10.

Sheets of any size, for City, County or State Maps, mounted to order at short notice.

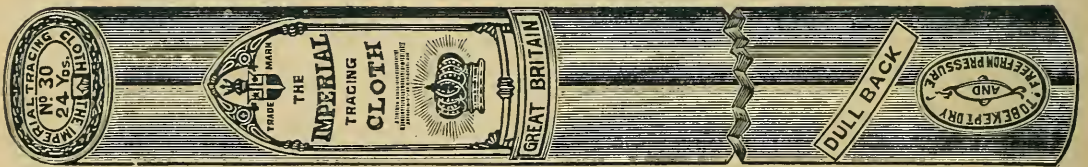
**WHATMAN'S DRAWING PAPER—MOUNTED.**

In ordering please specify which surface is wanted, HP., CP. or R., also size.

120. Whatman's Drawing Paper, mounted.

Royal.....	19 × 24 in.,	Selected Best	.....	per sheet	\$ .40
Imperial.....	22 × 30 "	"	.....	"	.45
Double Elephant	27 × 40 "	"	.....	"	.75
Antiquarian ....	31 × 53 "	"	.....	"	1.80

**TRACING CLOTHS (Vellum).**



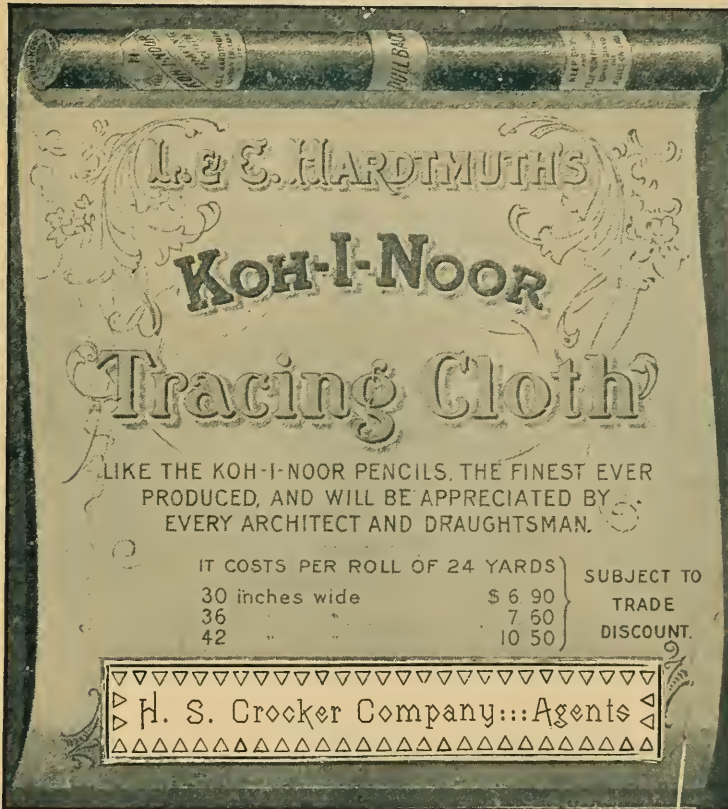
130. Imperial, one side glazed, the other dull.

30 in. wide.....	per roll of 24 yards	\$ 6.90	per yard	\$ .35
36 " .....	" "	7.60	"	.40
42 " .....	" "	10.50	"	.50
48 " .....	" "	14.20	"	.70
54 " .....	" "	15.00	"	.75

Samples sent on application.



TRACING CLOTHS—Continued.



138. Koh-I-Noor, one side glazed, the other dull.

30 in. wide.....	per roll of 24 yards	\$ 6.90	per yard	\$ .35
36 " .....	" "	7.60	"	.40
42 " .....	" "	10.50	"	.50
48 " .....	" "	14.20	"	.65

140. Mephisto, one side glazed, the other dull.

30 in. wide.....	per roll of 24 yards	\$ 6.00	per yard	\$ .30
36 " .....	" "	7.00	"	.35
42 " .....	" "	9.35	"	.45

TRACING CLOTH POWDER.

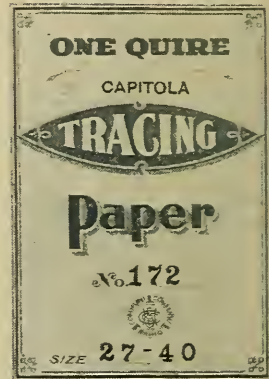
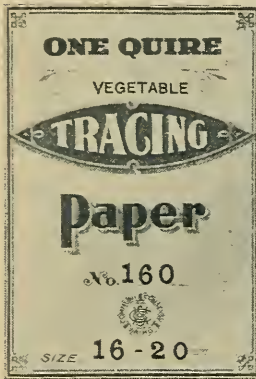
150. Tracing Cloth Powder, in tin shaker..... each \$ .15

When cloth will not take ink readily, the trouble can be overcome by applying a small quantity of the powder to the surface of the cloth and distributing it evenly by rubbing with a piece of soft cloth. The powder must be thoroughly removed, before applying the ink.

Samples of Tracing Cloth sent on application.

# TRACING PAPERS.

IN SHEETS.



Reduced facsimiles of labels of our Tracing Papers.

160. **Vegetable**, transparent and very tough.

Cap.....	13 × 17 in.....	per quire	\$ .90
Demy.....	16 × 20 ".....	"	1.25
Royal.....	19 × 25 ".....	"	2.00
Imperial.....	22 × 28 ".....	"	2.50

162. **Crane's Bond**, thin, transparent and very tough.

27 × 40 in.....	per quire	\$2.40
-----------------	-----------	--------

166. **Mesa**, transparent and very tough.

27 × 40 in.....	per quire	\$3.20
-----------------	-----------	--------

170. **Duarte**, thin, transparent and tough.

27 × 40 in.....	per quire	\$1.50
-----------------	-----------	--------

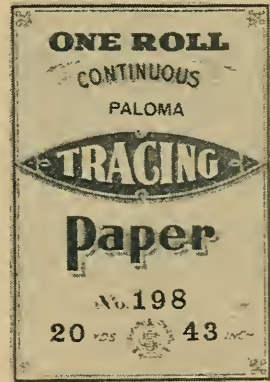
172. **Capitola**, similar to No. 170, but medium thick.

27 × 40 in.....	per quire	\$2.00
-----------------	-----------	--------

Samples of Tracing Paper sent on application.

# TRACING PAPERS.

CONTINUOUS IN ROLLS.



Reduced facsimiles of labels of our Tracing Papers.

180. **Parchment**, medium, very tough.  
40 in. wide, in rolls of 20 yards..... per roll \$3.50
182. **Parchment**, thick, very tough.  
40 in. wide in rolls of 20 yards..... per roll \$4.50
184. **Castella**, medium, white, tough.  
40 in. wide, in rolls of 20 yards..... per roll \$1.75
187. **Verano**, Transparent Sketching Paper. Very strong and tough, possesses excellent erasing qualities and is equally adapted for ink or pencil work.  
36 in. wide, in rolls of 50 yards..... per roll \$2.40  
60 " " 50 " ..... " 3.60
188. **Bodega**, prepared, stout and transparent.  
40 in. wide, in rolls of 20 yards..... per roll \$3.25  
57 " " 20 " ..... " 4.50
190. **Coloma**, medium, very transparent.  
40 in. wide, in rolls of 20 yards ..... per roll \$2.00

Samples of Tracing Paper sent on application.

**TRACING PAPERS—Continued.**

192. **Moqui, thin, for transferring, white, natural.**

57 in. wide, in rolls of 22 yards .....	per roll	\$2.00
57 " " 44 " .....	"	3.90

194. **Yucca, thin, tough, and transparent.**

43 in. wide, in rolls of 20 yards .....	per roll	\$1.60
---	----------	--------

196. **Mesquite, medium thick, transparent.**

43 in. wide, in rolls of 20 yards .....	per roll	\$2.00
---	----------	--------

198. **Paloma, thin.**

40 in wide, in rolls of 20 yards .....	per roll	\$1.35
--	----------	--------

200. **American, thin manila, for detail tracing.**

40 in. wide, in rolls of 50 yards .....	per roll	\$1.50
48 " " 50 " .....	"	2.00
40 " " 100 " .....	"	2.50
48 " " 100 " .....	"	3.00

202. **Wawona, thin, natural, tough, transparent.**

40 in. wide, in rolls of 20 yards .....	per roll	\$1.60
---	----------	--------

204. **Bond Tracing Paper, thin.**

42 in. wide, in rolls of 20 yards .....	per roll	\$1.20
---	----------	--------

206. **Bond Tracing Paper, medium.**

42 in. wide, in rolls of 20 yards .....	per roll	\$1.75
---	----------	--------

**Samples of Tracing Paper sent on application.**

# BLUE PRINT AND BLACK PRINT PAPERS.



Our Royal and Cosmos blue print papers are considered perfect. Give them a trial. We coat our paper every day, thereby insuring its freshness.



Reduced facsimiles of labels of prepared Cosmos and Royal papers.

215. **Cosmos Paper, medium, prepared, continuous.**

30 in. wide...	per roll of 10 yards	\$ .70	per roll of 50 yards	\$3.00
36 " ... "	" " "	.80	" "	3.50
42 " ... "	" " "	.90	" "	4.00

217. **Cosmos Paper, extra thin, prepared, continuous.**

30 in. wide...	per roll of 10 yards	\$ .60	per roll of 50 yards	\$2.50
36 " ... "	" " "	.70	" "	3.00
42 " ... "	" " "	.80	" "	3.50

219. **Royal Paper, thick, prepared, continuous.**

30 in. wide...	per roll of 10 yards	\$ .90	per roll of 50 yards	\$3.90
36 " ... "	" " "	1.00	" "	4.40
42 " ... "	" " "	1.10	" "	4.90

## HOW TO PRINT SUCCESSFULLY.

The glass in the Frame should be kept clean and free from dust. After removing the back of the Frame and the Cushion, place the tracing on the glass, with the inked side against it (or it will give a negative print), place on that the prepared paper, the prepared side toward the tracing; then put the felt cushion on smoothly, and close and lock the frame. Lack of contact produces blurred prints. Examine tracing and paper through the glass in the frame, and if there is lack of contact anywhere, correct it by placing paper or pasteboard between cushion and back of frame. When looking at the print to determine time of exposure, open only part of the frame, and raise a corner of the paper. In carrying the print to the bath after exposure, roll it with the blank side out, to protect it from light, and be quick about it. There is no definite time for exposure; the length of exposure depends upon the transparency of the tracing and the intensity of light. We prepare a special paper for winter use.

We prepare TO ORDER Rapid Printing Papers.

# SOMBRIO SOLAR PRINT PAPERS.

The Premier Brown Print and Negative Paper, for making brown or black negative prints and blue or black prints on paper or cloth.

The advantages of Sombrio Solar Print Paper are many, chief of which are the following :

- I. It is simple and speedy in action.
- II. It keeps well and does not get hard or brittle.
- III. It produces a negative copy of the original on a deep brown opaque background.
- IV. It saves your original and will not spoil if over-exposed.
- V. It is rich in general effect and tone and produces great durability and richness of color.
- VI. Sombrio Solar Prints can be added to, colored or altered, the same as an original drawing.

Maps made with our Sombrio Solar Print Paper cannot be distinguished from the finest engraved work.

## DESCRIPTION.

The thin paper (our No. 218) is best suited for use as a negative. From this negative, as the original (in place of the tracing), can be produced :

**Blue Line Prints on a white background** by printing on regular blue print paper or cloth with an exposure of about four minutes in bright sunlight, or on rapid Blue Print Paper or cloth with an exposure of about one minute in bright sunlight.

**Black Line Prints on a white background** by printing on our No. 220 Medium, or No. 222 Sombrio Solar Cloth with an exposure of about eight minutes in bright sunlight.

Prints made by this process are permanent and will never fade.

218. Sombrio Solar Print Paper, thin for mailing or negatives.

30 in. wide, in rolls of 10 yards. ....	per roll	\$1.80
36 " " 10 " .....	"	2.10
42 " " 10 " .....	"	2.40

220. Sombrio Solar Print Paper, medium thick.

30 in. wide, in rolls of 10 yards. ....	per roll	\$1.80
36 " " 10 " .....	"	2.10
42 " " 10 " .....	"	2.40

222. Sombrio Solar Print Cloth.

30 in. wide, in rolls of 10 yards. ....	per roll	\$4.20
36 " " 10 " .....	"	4.80
42 " " 10 " .....	"	6.00

Directions and fixing salt furnished with each roll.

Samples furnished on application.

**CROCKER'S BLACK PRINT PAPER.**

A paper used exactly as in the blue print process, but making a pure black line on a white ground. The prints made from this paper are absolutely permanent, and may be altered or colored. There is no acid bath or developer used, it being necessary to use only the simple water bath as in blue printing.

235.	30 in. wide, in rolls of 10 yards	.....	per roll	\$2.50
	36 " " " 10 "	.....	" "	3.00
	42 " " " 10 "	.....	" "	3.50

**BLUE PRINT CLOTH.**

The very best cloth manufactured is used by us for blue print purposes.

238.	<b>Royal Cloth, prepared, continuous.</b>			
	30 in. wide	.....	per roll of 10 yards	\$3.00
	36 " " "	.....	" "	3.50
	42 " " "	.....	" "	4.00
248.	<b>Royal Cloth, unprepared, continuous.</b>			
	30 in. wide	.....	per roll of 10 yards	\$2.50
	36 " " "	.....	" "	3.00
	42 " " "	.....	" "	3.50

**AIR-TIGHT METAL PRESERVING TUBES.**



No. 250.

These tubes are made of tin, with covers, and are practical receptacles for storing prepared paper. They exclude both light and moisture.

250.	25 in. long	....	for 10-yard rolls, each	\$1.20	50-yard rolls, each	\$1.35
	31 " " "	....	" " "	1.25	" " "	1.40
	37 " " "	....	" " "	1.30	" " "	1.55
	43 " " "	....	" " "	1.40	" " "	1.70



No. 253.

253.	Spring Clips for holding prints while drying	.....	per dozen	\$ .25
------	--	-------	-----------	--------

## UNPREPARED PAPERS FOR BLUE PRINTING.

260. **Cosmos Paper, medium thick, unprepared.**

30 in. wide	.....	per roll of 50 yards	\$2.60
36 "	.....	" "	3.20
42 "	.....	" "	3.80

261. **Royal Paper, thick, unprepared.**

30 in. wide	.....	per roll of 50 yards	\$3.20
36 "	.....	" "	3.80
42 "	.....	" "	4.50

265. **Extra Thin Paper, very thin and tough, for mailing, unprepared.**

30 in. wide	.....	per roll of 50 yards	\$2.25
36 "	.....	" "	2.60
42 "	.....	" "	3.00

Quotations on unprepared paper in large rolls given on application.

## CROCKER'S ERASING FLUID.

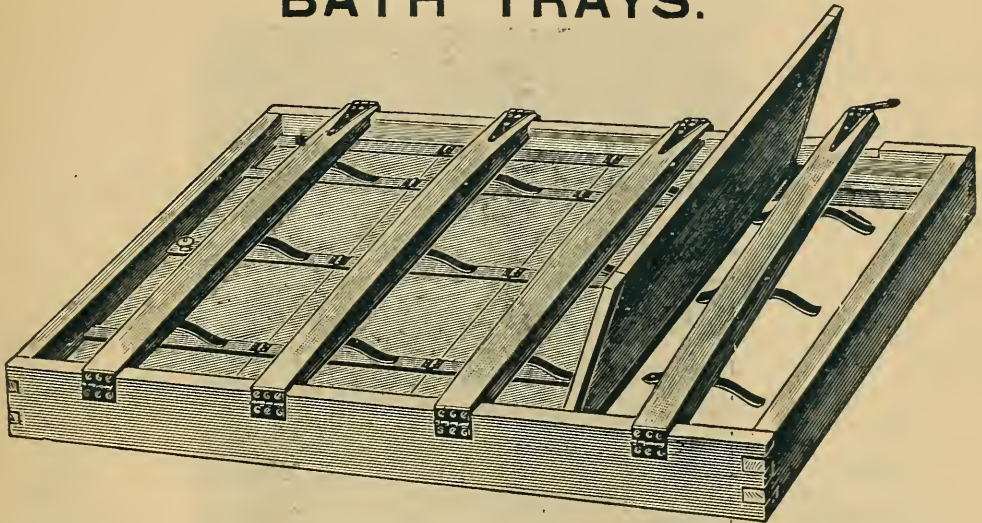


For altering Blue or Black Prints.

269.	Erasing Fluid, white	.....	per bottle	\$ .20
270.	" " red	.....	"	.20
271.	" " yellow	.....	"	.20



## BLUE PRINT FRAMES AND BATH TRAYS.

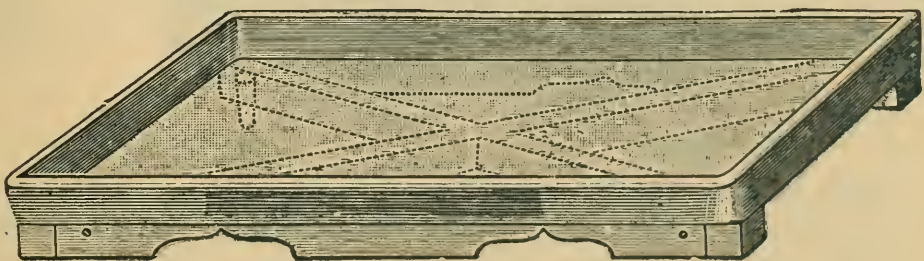


Made of hardwood with brass mountings, these frames are of perfect workmanship so as to stand exposure to the weather.

		Frames only.	With pad and double thick glass.	With pad and polished plate glass.
272.	20 × 24 in.....each	\$ 6.25	\$7.50	\$10.25
273.	24 × 30 " .....	8.00	9.50	12.50
274.	30 × 42 " .....	12.50	....	22.75
275.	36 × 60 " .....	20.00	....	43.00

We recommend polished plate glass, as it is more durable and is without flaws.

### BLUE PRINT BATH TRAYS.



No. 278.

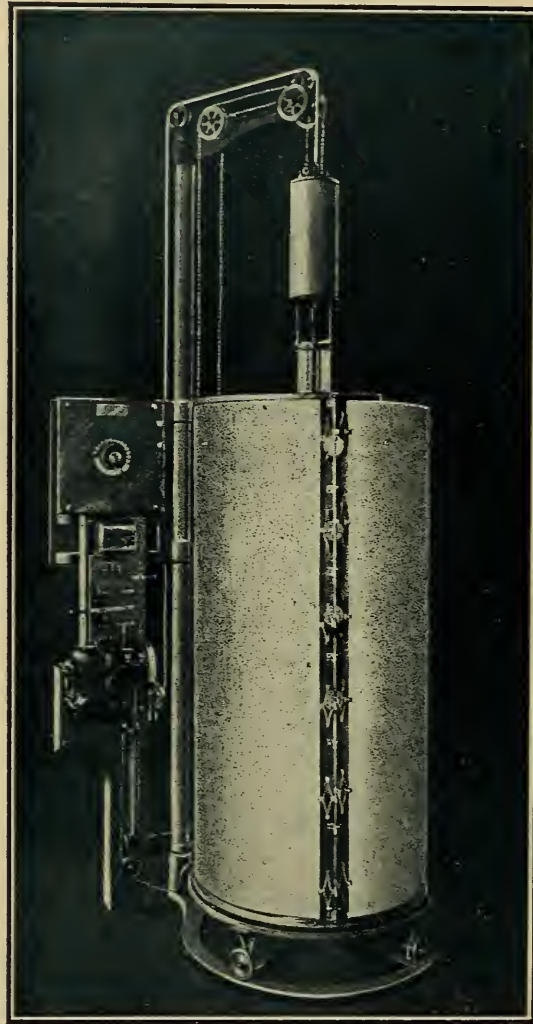
Made of zinc, with strong rim, wooden braces, and drain pipe.

276.	20 × 24 in. ....	each	\$4.50
277.	24 × 30 " .....	"	5.00
278.	30 × 42 " .....	"	6.75
279.	36 × 60 " .....	"	9.50

Special sizes made to order.

**CYLINDRICAL BLUE PRINT MACHINE.**

(PATENTED.)



WE DO  
BLUE  
PRINTING,  
BLACK  
PRINTING,  
ETC.

PRINTING  
DONE  
ON  
SHORT  
NOTICE  
BY OUR  
NEW  
ELECTRICAL  
MACHINE.

**ADVANTAGES OF OUR MACHINE.**

These machines can be furnished in any of the following types:

Standard Upright, Wall or Self-Contained, with hand or automatic lamp controller. Tilting Cylinder, Wall or Self-Contained, with hand or automatic lamp controller.

280.	1.	Capacity two prints each	30×42	.....	\$375.00
	2.	“ “ “ “	36×60	.....	420.00
	3.	“ “ “ “	42×60	.....	450.00
	4.	“ “ “ “	42×76	.....	475.00
	5.	“ “ “ “	42×84	.....	550.00

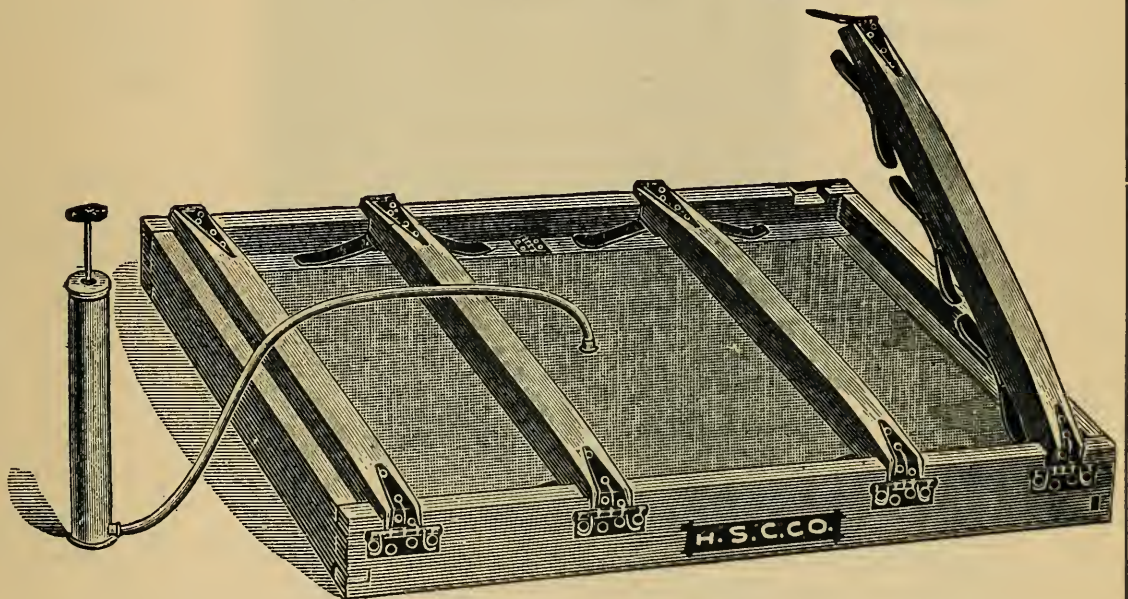
The above prices are F. O. B., Pittsburg, Pa.

Special sizes made to order.

**CYLINDRICAL BLUE PRINT MACHINE—Continued.**

- 1st. Absolute independence of weather condition.
- 2nd. Prints can be made cheaper than by sun process.
- 3rd. More prints can be made per day than by any other frame, either sun or electric.
- 4th. Glasses used are absolutely perfect, insuring better contact than can be obtained on any other blue printer.
- 5th. Spring clip curtain fasteners are simpler in construction and more easily operated than any other type of fastener, and automatically take up any unequal stretching of canvas cover.
- 6th. Arc lamp is more economical of current and more powerful than any other lamp on the market.
- 7th. Lowering mechanism, both hand and automatic, are simple in construction and very durable.
- 8th. No oil or other liquid used about machine, and no valves, pistons, etc., to be kept free from leakage.
- 9th. Machine requires less floor space than any other.

**THE VACUUM SUN FRAME.**



For obtaining the closest contact, these frames of our own special manufacture are unsurpassed.

By means of a hand pump, the air is entirely exhausted between the cushion and the glass, forming the best contact obtainable between the tracing and sensitized paper.

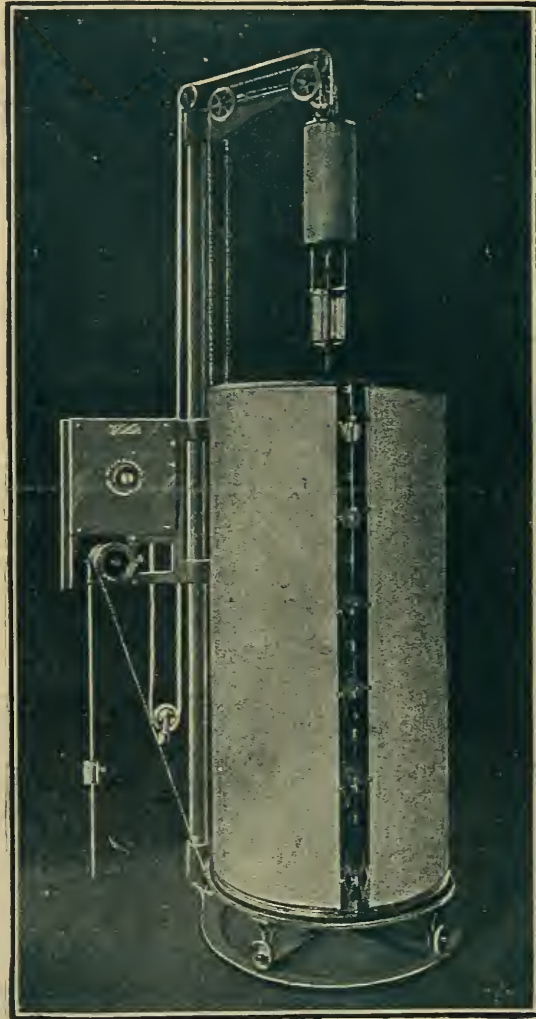
By the use of the Vacuum Sun Frames, the faintest lines of a drawing can be reproduced, or drawings wrinkled or worn by much handling can be flattened out and good prints taken therefrom. Sombrio Solar Prints (in which process contact is a first essential) can be made exceptionally sharp and distinct.

			Frame only, without glass.	Frame complete, polished, plate glass.
281.	1.	30×42	each \$45.00	\$60.00
	2.	36×60	" 55.00	77.00

Any sizes made to order.

**CYLINDRICAL BLUE PRINT MACHINE.**

(PATENTED.)



CAN BE  
USED IN  
ANY KIND  
OF WEATHER.

PRINTING  
DONE  
BY ELECTRIC  
LIGHT.

This Machine is simpler and more durable than any other Machine on the Market. The Cylinder consists of two semi-cylindrical sheets of heavy plate glass, which in the upright machine, are held rigidly together by brass bands, top and bottom. Wooden strips, front and back, separate the half cylinders and afford supports for attaching the cover canvas which holds the drawings and paper in place on the outside of the cylinder. In the tilting machine, the semi-cylinders are held in a frame consisting of cast iron endings and channel side-bars.

The lamp used is specially designed and built for this work and is very rich in actinic or printing rays. The lamp can be adjusted for any voltage, either direct or alternating current.

Automatic Lamp Controller consists of a small electric motor, suitably geared and connected to regulate the speed of the lamp lowering and raising. With this device, the entire operation, including lighting and extinguishing of the lamp, is automatic.

Hand-raising controller consists of a drum and pendulum and escapement regulator. The pendulum weight is set at the proper point to give correct exposure, and by disengaging drum from escapement wheel lamp is raised by hand.

# ROYAL PROFILE PAPERS AND CLOTHS.

Printed in orange or green.

Profile Paper Umounted  
in rolls of 50 Yards.



Mounted on Muslin  
in rolls of 20 yards.

Reduced facsimile of label of our Profile Paper,

## PROFILE CLOTH.

In rolls of 20 yards.

We wish to call attention to our "Royal Profile and Cross Section Paper and Cloth." The lines are more distinct and perfect than are those of any other brand.



Plate A, 4 × 20 to one inch.

283.	Plate A, continuous,	20 in. wide.	.....	per yard	\$ .24
285.	" A,	" 20	" mounted on muslin	.....	" .60
286.	" A,	" 20	" Cloth, not transparent..	"	.60
287.	" A,	" 20	" Paper, transparent and in orange only	.....	" .24
288.	" A,	" 20	" Cloth, transparent and in orange only	.....	" .75

In ordering give color, orange or green.  
Samples sent on application.

ROYAL PROFILE PAPERS AND CLOTHS—Continued.



Plate B, 4 × 30 to one inch.

293.	Plate B, continuous, 20 in. wide .....	per yard \$	.24
295.	“ B, “ 20 “ mounted on muslin .....	“	.60
296.	“ B, “ 20 “ Cloth, not transparent..	“	.60
297.	“ B, “ 20 “ Paper, transparent and in orange only.....	“	.24
298.	“ B, “ 20 “ Cloth, transparent and in orange only .....	“	.75

ROYAL CROSS SECTION PAPERS  
AND CLOTHS.

Mounted on Muslin in rolls of 20 yards.

Printed in orange or green.

Cross Section Paper  
Unmounted  
in rolls of 50 yards.

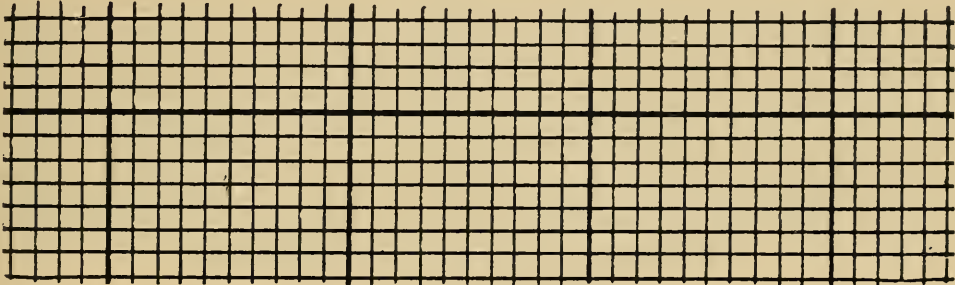


Cross Section Cloth  
in rolls of 20 yards.

Reduced facsimile of label of our Cross Section Paper.

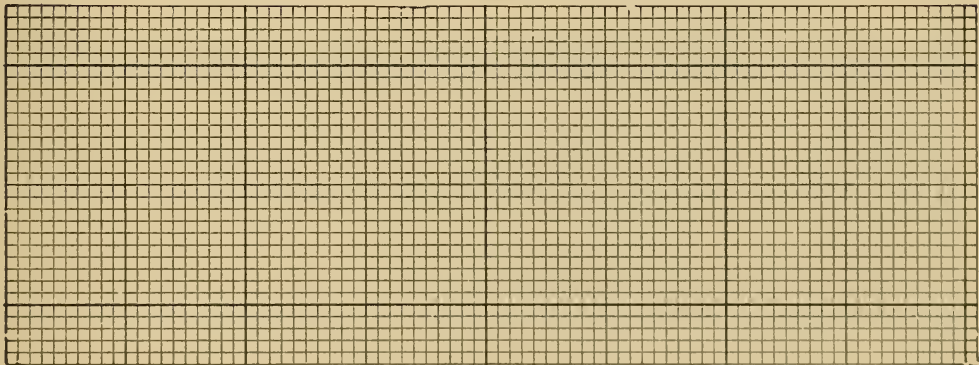
Samples sent on application.

ROYAL CROSS SECTION PAPERS AND CLOTHS—Cont'd.



10 × 10 to one inch.

			Per quire.	Per sheet
300.	Sheets, engraving 16 × 20 in.....		\$3.50	\$ .20
301.	“ “ 16 × 20 “ Paper, transparent and in orange only.....		3.50	.20
				Per yard.
303.	Continuous, 20 in. wide.....			\$ .24
305.	“ 20 “ mounted on muslin.....			.60
306.	“ 20 “ Cloth, not transparent.....			.60
307.	“ 20 “ Paper, transparent and in orange only...			.24
308.	“ 20 “ Cloth, transparent and in orange only...			.75

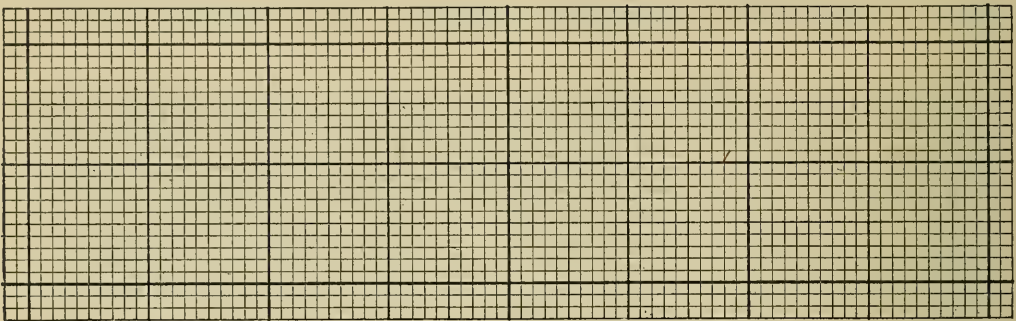


20 × 20 to one inch.

			Per quire.
310.	Sheets, 5 × 7 in., in green only.....		\$ .30
311.	“ 5 × 7 “ in orange only, on transparent paper.....		.30
313.	“ 7 × 10 “ in green only.....		.50
315.	“ 7 × 10 “ in orange only, on transparent paper.....		.50

In ordering give color, orange or green.

ROYAL CROSS SECTION PAPERS AND CLOTHS—Cont'd.



10 × 10 to ½ inch, every fifth line heavy.

Per quire.

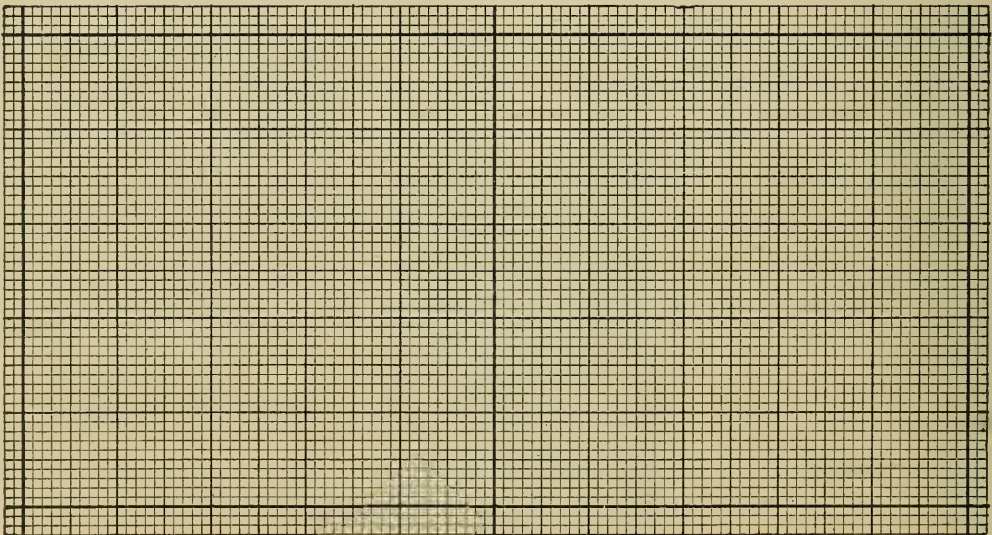
- |      |  |        |
|------|--|--------|
| 318. | Sheets, 5 × 7 in., in green only.....                | \$ .30 |
| 319. | “ 5 × 7 “ in orange only, on transparent paper.....  | .30    |
| 320. | “ 7 × 10 “ in green only.....                        | .50    |
| 321. | “ 7 × 10 “ in orange only, on transparent paper..... | .50    |

Unmounted  
in rolls of 50 yards.



Mounted  
in rolls of 20 yards.

Reduced facsimile of label of our Cross Section Paper.



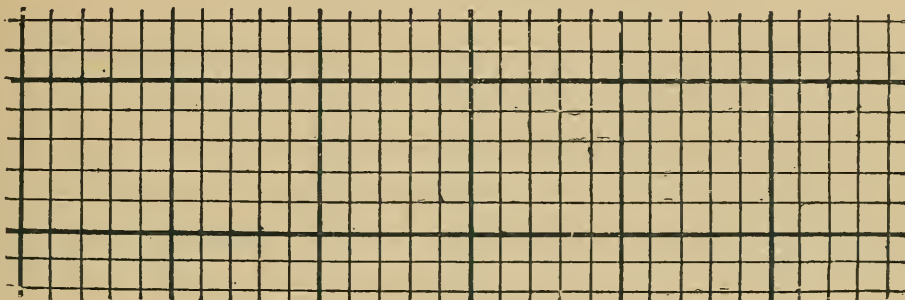
Millimeter.

Per yard.

- |      |  |        |
|------|--|--------|
| 323. | Continuous, 50 cm. wide, in rolls of 50 yards..... | \$ .24 |
| 325. | “ 50 “ “ 20 “ mounted on muslin...                 | .60    |
| 327. | “ 50 “ Paper, transparent and in orange only...    | .24    |



ROYAL CROSS SECTION PAPERS AND CLOTHS—Cont'd.



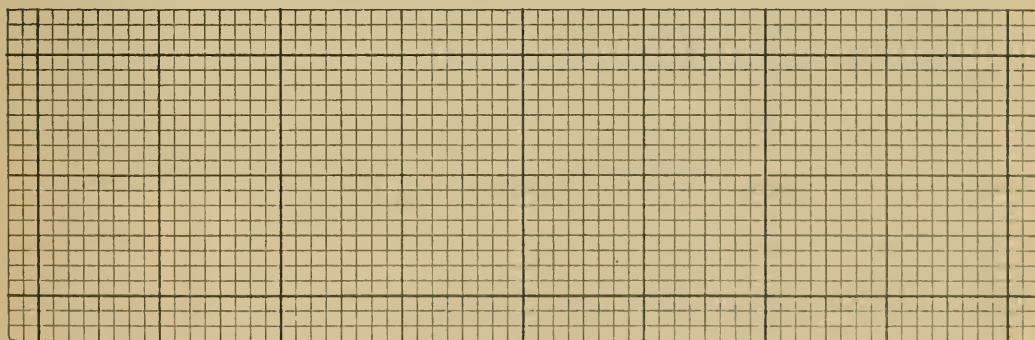
8 × 8 to one inch (sheets only).

		Per quire.	Per sheet.
328.	Engraving 16 $\frac{1}{4}$ × 21 $\frac{7}{8}$ in. ....	\$3.50	\$ .20
329.	“ 16 $\frac{1}{4}$ × 21 $\frac{7}{8}$ “ Paper, transparent and in orange only.....	3.50	.20



5 × 5 to  $\frac{1}{2}$  inch (sheets only).

		Per quire.	Per sheet.
330.	Engraving 16 × 20 in.....	\$3.50	\$ .20
331.	“ 16 × 20 “ Paper, transparent and in orange only .....	3.50	.20



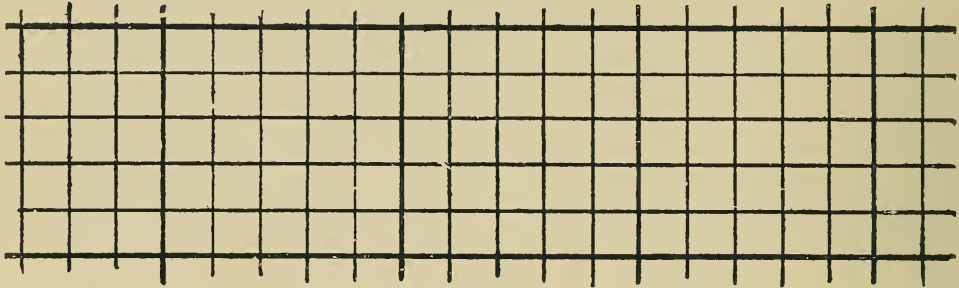
16 × 16 to one inch (sheets only).

		Per quire	Per sheet.
334.	Engraving 16 × 21 in., green or orange.....	\$3.50	\$ .20
335.	“ 16 × 21 “ Paper, transparent and in orange only.....	3.50	.20

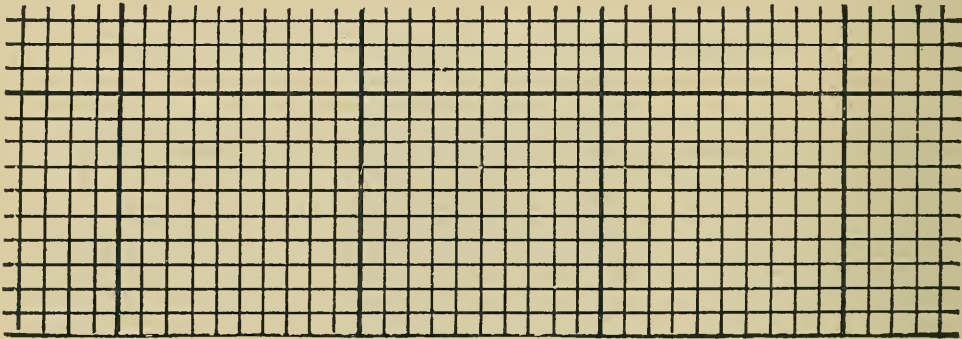
Samples sent on application.

# CROSS SECTION PAPERS.

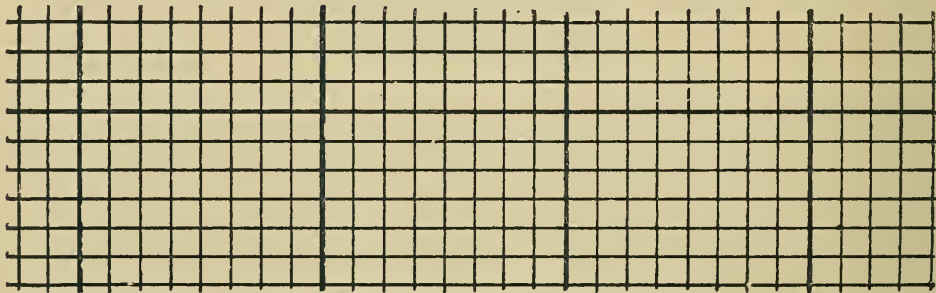
IN SHEETS—RULED.



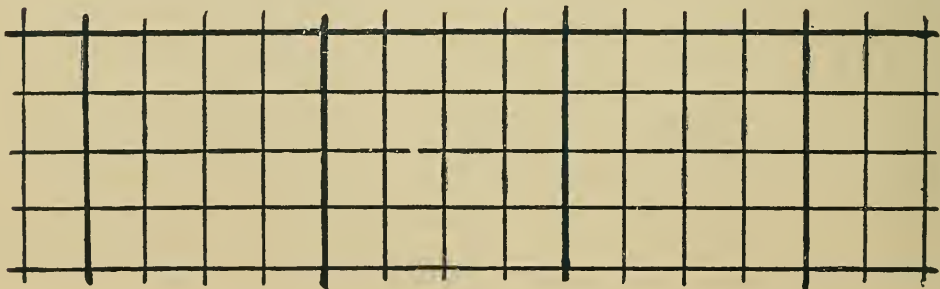
340. Cross Section, 16 × 21 in., 5 × 5 to one inch, blue . . . . . per quire \$1.00



341. Cross Section, 16 × 21 in., 10 × 10 to one inch, blue . . . . . per quire \$1.00



342. Cross Section, 16 × 21 in., 8 × 8 to one inch, blue . . . . . per quire \$1.00



343. Topographical paper, 16 × 21 in., 400 feet to one inch . . . per quire \$1.00

Samples sent on application.

**QUADRILLE RULED PAPERS.**

Squares  $\frac{1}{4}$  of an inch. Sheets 17 × 22 inches.

345. Ruled on one side..... per quire \$ .75  
 346. " two sides..... " 1.00

**TOWNSHIP PAPERS.**

Printed.

We carry a complete line of Township Plats. Send for catalogue.

**TOWNSHIP PLAT BOOKS.**

Bound in Flexible Russia, with Flap, Open on Side.

348. Township Plat Book,  $3\frac{1}{2} \times 6\frac{3}{4}$  in., 50 plats.....each \$1.00

Bound in Flexible Russia, Open on End.

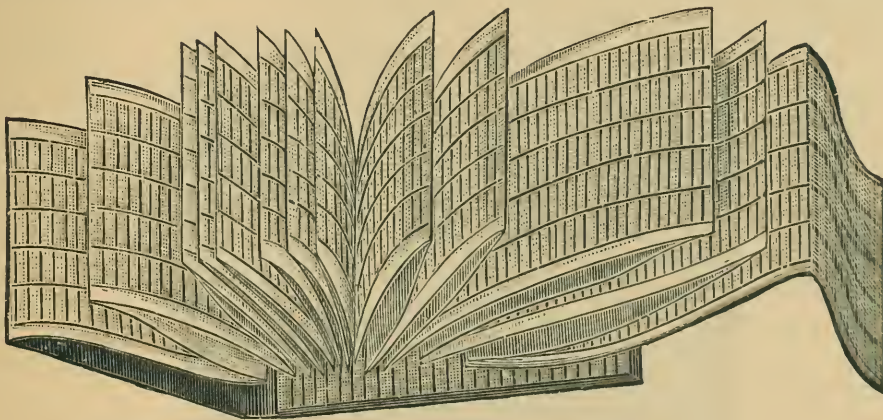
350. Township Plat Book,  $4\frac{1}{4} \times 7$  in., 80 plats.....each \$1.00

**BLOCK BOOKS.**

Bound in Russia, Open on Side, Indexed.

351. Block Book, 4 × 6 in., 220 pages.....each \$1.00

**CONTINUOUS PROFILE BOOKS.**



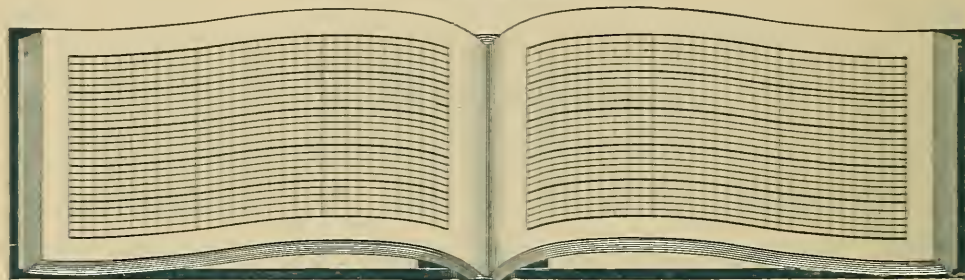
No. 360.

Bound in Flexible Leather Covers.

These books are folded like a map to replace the continuous rolls of profile paper.

360. Plate A. 4 × 20 to one inch, green, pages  $5\frac{1}{2} \times 8$  in.  
 Each.....  $\begin{matrix} 12 & 25 & 50 & 100 \text{ miles.} \\ \$2.00 & \$3.20 & \$5.40 & \$9.60 \end{matrix}$
361. Plate B. 4 × 30 to one inch, green, pages  $4\frac{3}{4} \times 8$  in.  
 Each.....  $\begin{matrix} 12 & 25 & 50 & 100 \text{ miles.} \\ \$2.00 & \$3.20 & \$5.40 & \$9.60 \end{matrix}$

**PROFILE BOOKS.**  
NOT CONTINUOUS



No. 365.

**Stiff Leather Covers.**

365. Plate A. Size of book, 7 × 10 in. Printed in green.	25	50	100 leaves.
Bound in leather, each . . . . .	\$1.90	2.50	3.50
366. Plate B. Size of book, 5½ × 10 in. Printed in green.	25	50	100 leaves.
Bound in leather, each . . . . .	\$1.90	2.50	3.50

**CROSS SECTION BOOKS.**

**Bound in Leather. Round Corners.**

Our Cross Section Field and Transit Books are bound in sheepskin, with round back and corners, except No. 374 Cross Section Book. The paper is of excellent quality, adapted for either ink or pencil.



No. 370.

**Ruled. 10 × 10 to 1 in.**

370. 5½ × 7½ in., 80 leaves, 10 × 10 to 1 in. . . . .	per dozen	\$7.00
371. 6½ × 8½ " 80 " 10 × 10 to 1 " . . . . .	"	9.50
372. 5 × 8 " 60 " 5 × 5 to 1 " . . . . .	"	6.50
373. 5 × 6½ " 80 " 10 × 10 to 1 " . . . . .	"	6.50

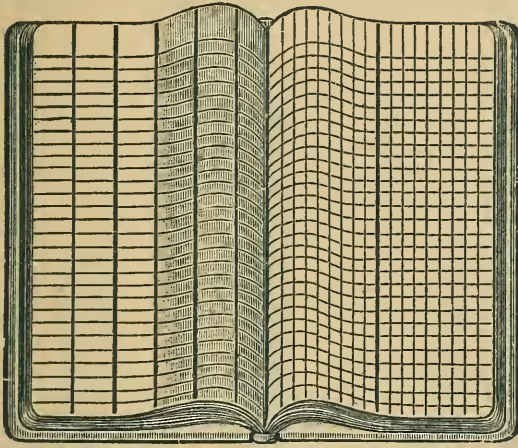
**Bound in Russia. Open on End. Round Corners.**

374. 4½ × 7 in., 80 leaves, 10 × 10 to 1 in. . . . .	per dozen	\$9.00
--	-----------	--------

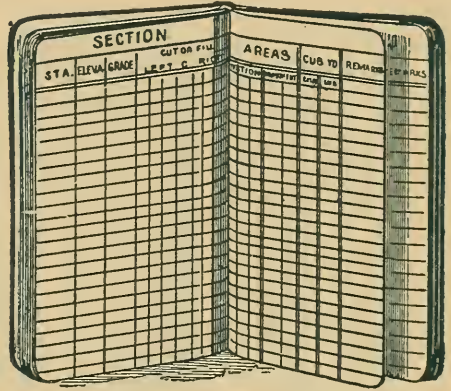
# FIELD BOOKS.

Bound in Leather. Round Corners.

WITH PRINTED HEADINGS.



No. 380.



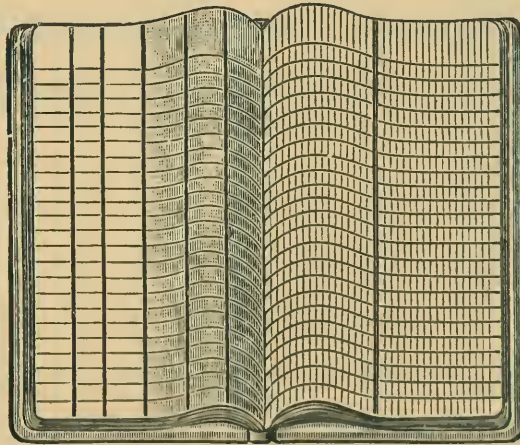
No. 390.

- |      |  |           |         |
|------|--|-----------|---------|
| 380. | Field Books, $4\frac{1}{2} \times 7\frac{1}{2}$ in., 80 leaves | per dozen | \$ 6.00 |
| 381. | “ “ $4\frac{1}{2} \times 7\frac{1}{2}$ “ 60 “                  | “         | 5.00    |
| 390. | “ “ $5 \times 7\frac{3}{4}$ “ 80 “ with printed headings       | “         | 9.00    |
| 392. | “ “ $5 \times 7\frac{1}{4}$ “ 100 “ “ “                        | “         | 10.00   |
- paged every other page, cross sectioned,  $10 \times 10$  in... “

Special styles and sizes of Cross Section and Field Books to order.

# TRANSIT BOOKS.

Bound in Leather. Round Corners.

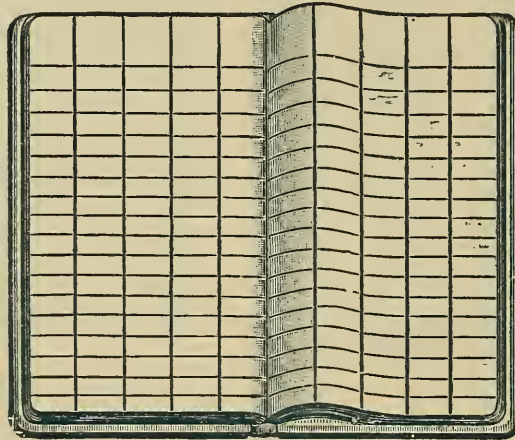


No. 397.

- |      |  |           |        |
|------|--|-----------|--------|
| 395. | Transit Book, $4\frac{1}{2} \times 7\frac{1}{2}$ , 80 leaves | per dozen | \$6.00 |
| 396. | “ “ $4\frac{1}{2} \times 7\frac{1}{2}$ , 80 “                | “         | 6.00   |
| 397. | “ “ $4\frac{1}{4} \times 7$ , 50 “                           | “         | 4.50   |
| 398. | “ “ $4\frac{1}{4} \times 7$ , 80 “                           | “         | 5.50   |

**LEVEL BOOKS.**

**Bound in Leather. Round Corners.**



No. 400.

400.	Level Book, 4 × 6½,	80 leaves.....	per dozen	\$5.50
401.	“ 4 × 6½,	60 “ .....	“	4.75
402.	“ 4¼ × 6¾,	50 “ .....	“	4.50
403.	“ 4 × 6½,	50 “ .....	“	4.50
404.	“ 4½ × 7¾,	60 “ .....	“	6.00

**TOPOGRAPHICAL BOOKS.**

**Open on Side, Bound in Leather, Round Corners.**

450.	8 × 8 in., 80 leaves .....	per dozen	\$12.00
------	----------------------------	-----------	---------

**FIELD BOOKS.**

**Printed Headings.**

**Open on Side, Bound in Flexible Russia, Round Corners.**



453.	Field Book 5 × 7 in., 80 leaves .....	per dozen	\$12.00
------	---------------------------------------	-----------	---------


**Bound in Cloth, Open on Side.**

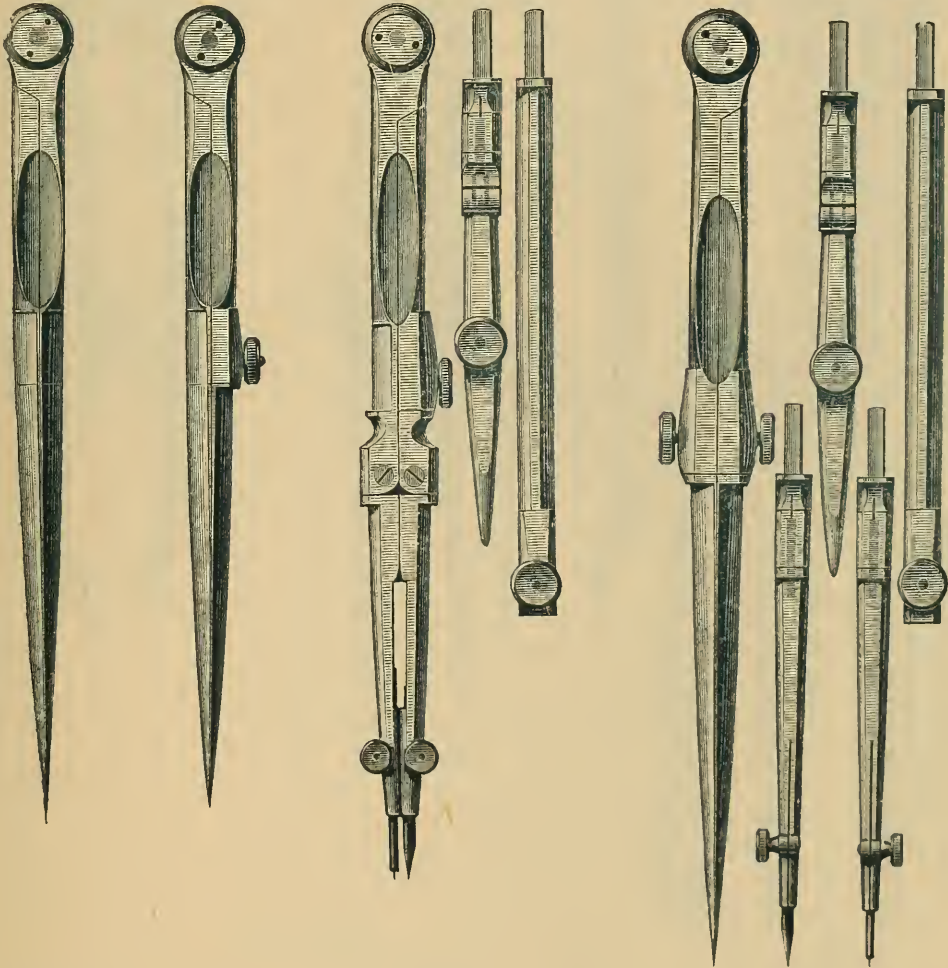
As prescribed by the U. S. Surveyor-General at Washington, printed headings, etc.

459.	Field Books, 4¼ × 6¾ in .....	per dozen	\$4.00
------	-------------------------------	-----------	--------

## GENUINE SUPERIOR SWISS DRAWING INSTRUMENTS.

These instruments are made by the most skillful mechanics in Switzerland, and are of the finest hand-forged Steel and rolled Silver Plate. All are stamped H. S. C. Co. and with trademark  By reason of the great care used in the selection of the material and the attention  given to the perfection of all details in their manufacture, they are recognized as the standard of first quality Swiss Drawing Instruments.

We guarantee all instruments stamped H. S. C. Co. and with trademark 



No. 500.

502.

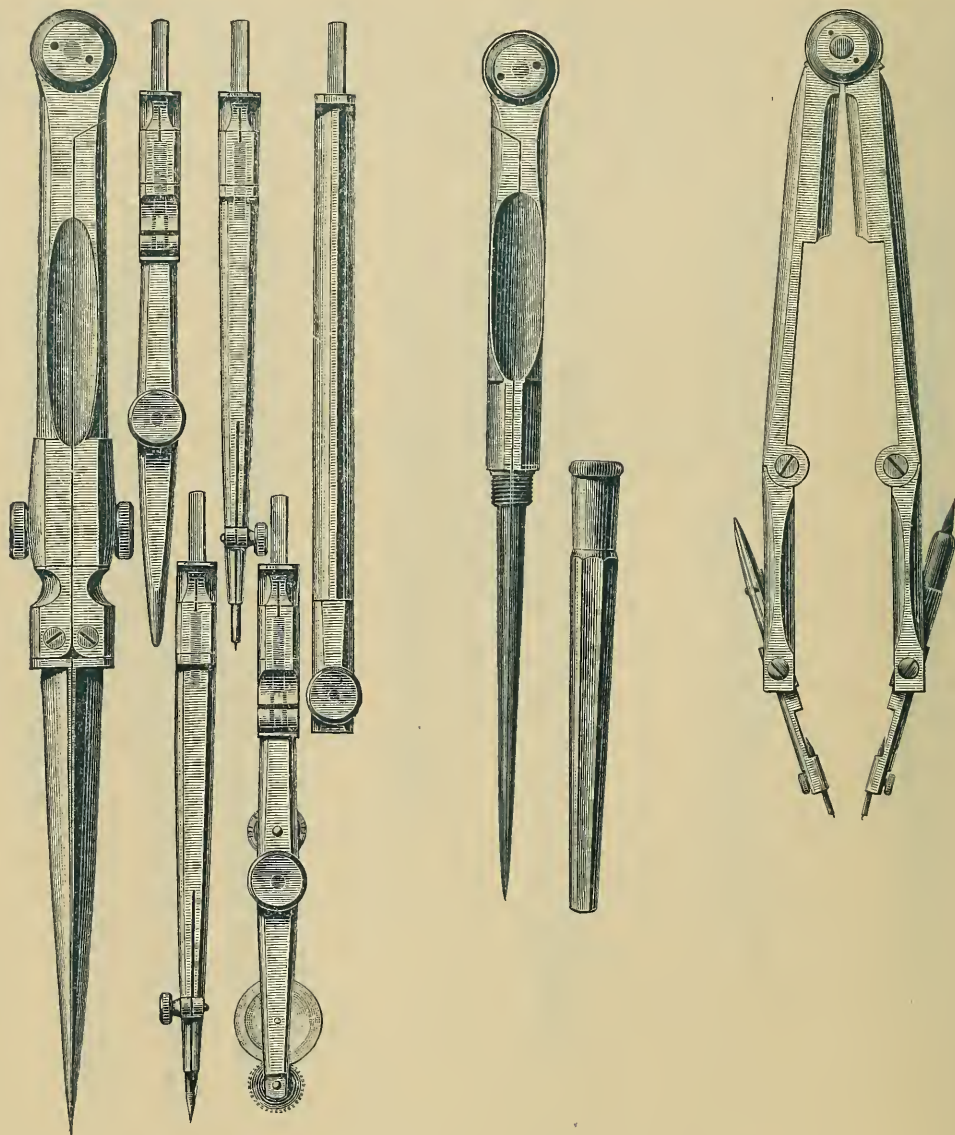
515.

517.

500.	Plain Dividers, 5 in.....	each	\$1.70
501.	“ 6 “.....	“	2.10
502.	Hairspring Dividers, 5 in.....	“	2.50
503.	“ 6 “.....	“	3.00
515.	Compasses, 5½ in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar.....	“	5.50
517.	Compasses, 6 in., with Pen, Pencil, Needle Point and Lengthening Bar.....	“	6.75

Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{2}{3}$  size.



No. 520.

525.

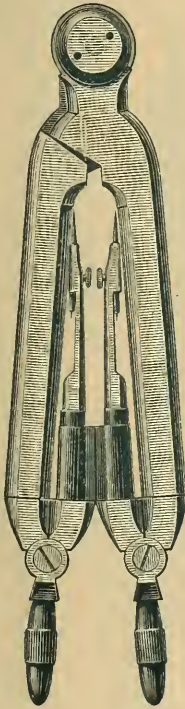
527.

519.	Compasses, 7 in., with Joint in each Leg, Pen, Pencil, Needle Point, Lengthening Bar and Dotting Pen . . . . .	each	\$10.50
520.	Compasses, 7 in., with Joint in each Leg, Pen, Pencil, Needle Point, Lengthening Bar and Dotting Pen with 6 wheels . . . . .	"	12.00
525.	Pocket Dividers, with Sheath, 5 in. . . . .	"	2.80
527.	Pocket Compasses, with Folding Points, 5 in. . . . .	"	10.00
	Morocco Cases, lined with silk velvet, for No. 527. . . . .	"	1.10

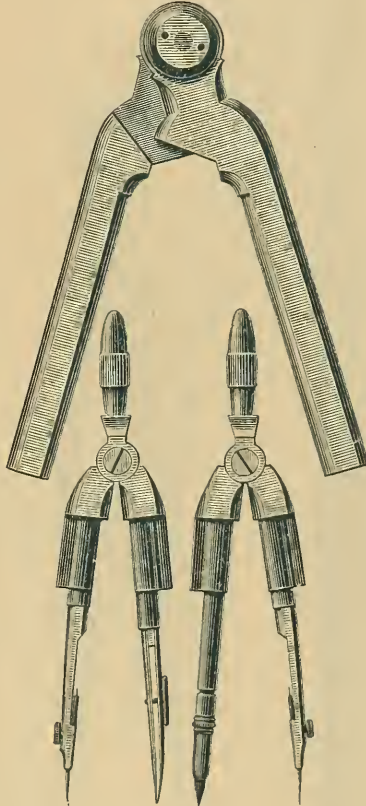


Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{2}{3}$  size.



Folded.



Drawn out for small circles.



No. 529.

530.

529.	Pillar Pocket Compass, with Handles, 2 Needle Points, Pen and Pencil Point, which can be withdrawn from the Compasses and used as small Bow-Pen and Pencil respectively. . each	\$10.00
530.	Three-legged Dividers, for taking off three points, 6 in. . . . . "	4.00
	Morocco Cases, lined with silk velvet, for No. 529 . . . . . "	1.50
	" " " " " 530 . . . . . "	1.75

Each instrument stamped H. S. C. Co. and with trademark



Illustrations  $\frac{2}{3}$  size.

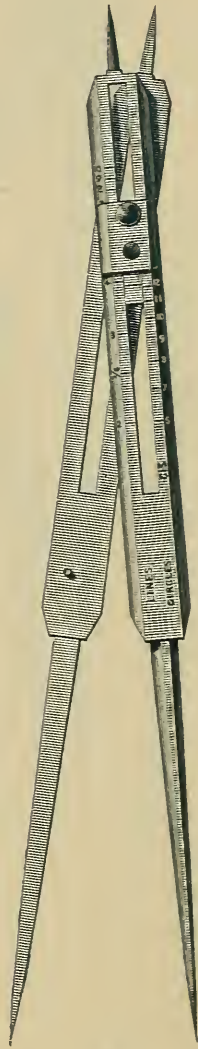
$\frac{1}{2}$  size.



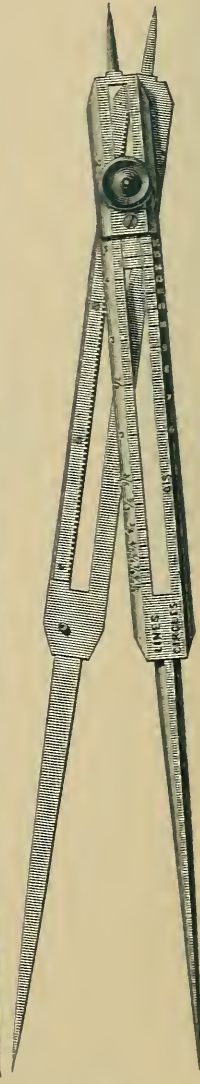
No. 531.



532.



535.



537.




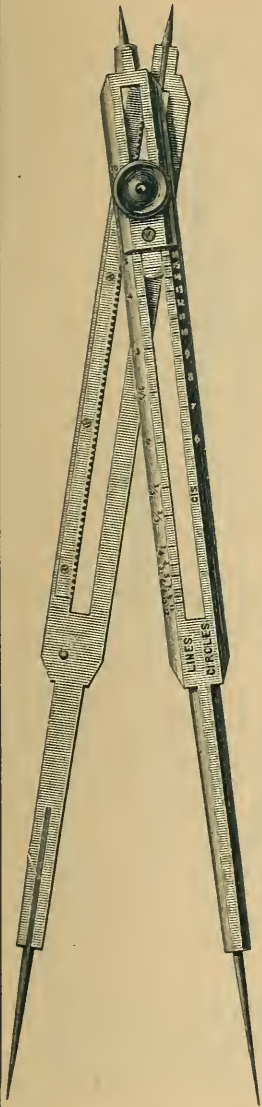
538.

	Each
531. Three legged Dividers, one leg adjustable for length, 6 in.	\$ 4.00
532. Whole and Half Dividers, 7 $\frac{1}{4}$ in. . . . .	3.60
535. Proportional Dividers, finely divided for lines and circles, 7 $\frac{1}{2}$ in. . . . .	9.75
537. Same, 8 $\frac{1}{2}$ in., with Rack-Movement. . . . .	12.25
538. Proportional Dividers, finely divided for lines and circles, 9 in. . . . .	11.00

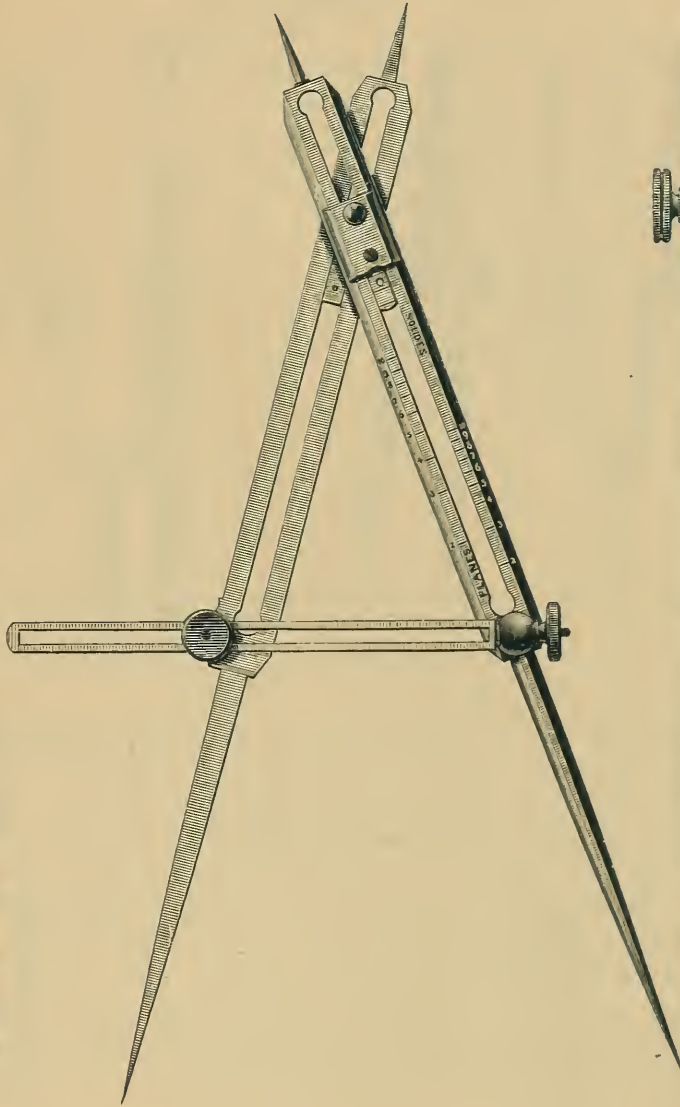
Morocco Cases, lined with silk velvet, for:

	No. 531.	532.	535.	537.	538.
Each . . . . .	\$1.50	1.75	1.60	1.70	1.75

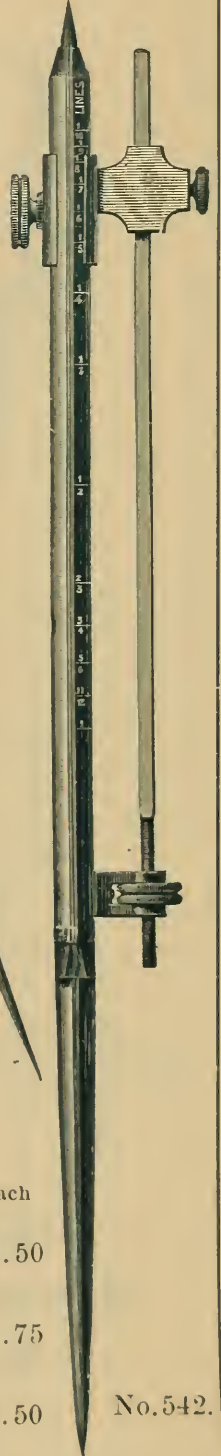
Each instrument stamped H. S. C. Co. and with trademark 



No. 539.



541.



No. 542.

- |      |   |         |
|------|---|---------|
|      |   | Each    |
| 539. | Proportional Dividers, finely divided for lines and circles<br>9 in., with Rack-Movement and movable points . . . . | \$14.50 |
| 541. | Proportional Dividers, finely divided for lines, circles,<br>planes and solids, 9 in., with Micrometer adjustment.  | 16.75   |
| 542. | Proportional Dividers finely divided for lines and circles,<br>9 1/4 in., with Micrometer adjustment . . . . .      | 14.50   |

Morocco Cases, lined with silk velvet for:

	No. 539.	541.	542.
Each . . . . .	\$1.75	1.75	1.75

H. S. CROCKER COMPANY

SAN FRANCISCO  
AND  
SACRAMENTO

Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{2}{3}$  size.



No. 550.



551.



553.

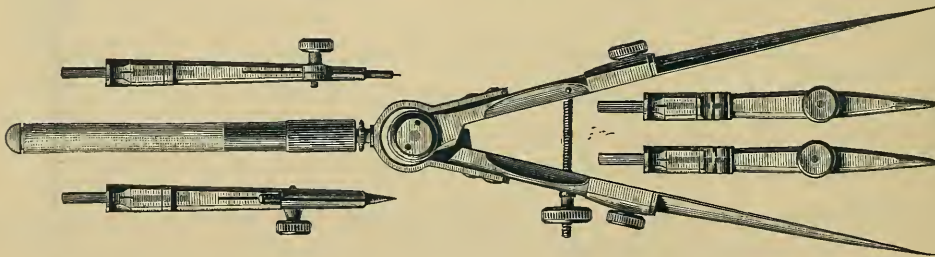


554.

- |      |   |      |         |
|------|---|------|---------|
| 550. | Bow Pen, 3½ in., with spring and adjusting screw . . . . .                  | each | \$ 2.25 |
| 551. | Bow Pen, 3½ in., with spring and adjusting screw and Pencil Point . . . . . | "    | 3.25    |
| 553. | Drop Spring Bow Pen, 4 in., for very small circles . . . . .                | "    | 2.60    |
| 554. | Drop Spring Bow Pen and Pencil, 4 in., for very small circles . . . . .     | "    | 3.80    |
|      | Morocco Cases for Nos. 553 or 554 . . . . .                                 | "    | 1.40    |


Nos. 553 and 554 are best adapted for drawing small circles, scratching of pen and slipping of needle point is prevented by a small center rod which remains stationary while the attachment with pen or pencil point is turned, thus drawing circles by its own weight.

Illustration  $\frac{2}{3}$  size.



No. 558.

558. Spring Bow Compasses, 3½ in., with long Ivory Handle, Pencil and Needle Point and 2 Pen Points (may also be used as railroad pen) . . . . . each \$ 7.25

Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{2}{3}$  size.



No. 559.



561.

- |      |  |        |
|------|--|--------|
| 559. | Minute Steel-spring Bow Dividers, with Metal Handle, $2\frac{1}{2}$ in. . . each                             | \$1.75 |
| 560. | “ “ “ Pen, “ “ “ $2\frac{1}{2}$ “ “  | 2.20   |
| 561. | “ “ “ Pencil, “ “ “ $2\frac{1}{2}$ “ “   | 2.20   |
| 562. | Minute Steel-spring Bows, set of 3, Nos. 559, 560, 561, in Morocco Case, lined with silk velvet. . . . . set | 7.00   |

Illustrations  $\frac{2}{3}$  size.




No. 563.



564.

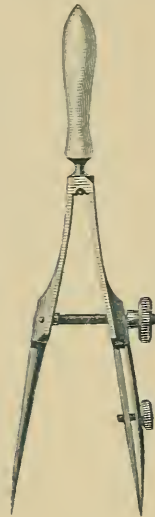
- |      |   |        |
|------|---|--------|
| 563. | Minute Steel-spring Bow Pen, Needle Point and Metal Handle, $2\frac{1}{2}$ in. . . . . each | \$2.50 |
| 564. | Minute Steel-spring Bow Pencil, Needle Point and Metal Handle, $2\frac{1}{2}$ in. . . . . “ | 2.50   |

Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{2}{3}$  size.



No. 565.



566.



567.

- |      |  |            |        |
|------|--|------------|--------|
| 565. | Steel-spring Bow Dividers, with Ivory Handle, 3 in.,                                     | ..... each | \$1.75 |
| 566. | “ “ Pen, “ “ “ 3 “   | ..... “    | 2.20   |
| 567. | “ “ Pencil, “ “ “ 3 “  | ..... “    | 2.20   |
| 568. | Steel-spring Bows, set of 3, Nos. 565, 566, 567, in Morocco Case, lined with silk velvet | ..... set  | 7.00   |

Illustrations  $\frac{2}{3}$  size.




No. 569.

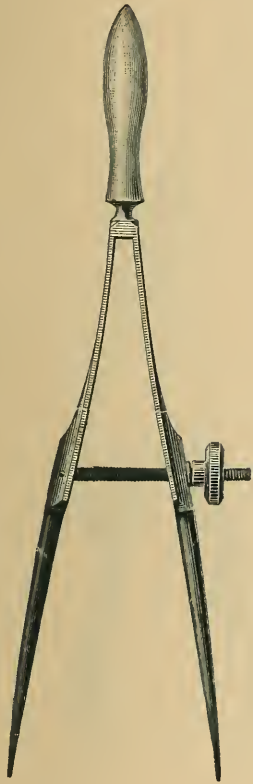


570.

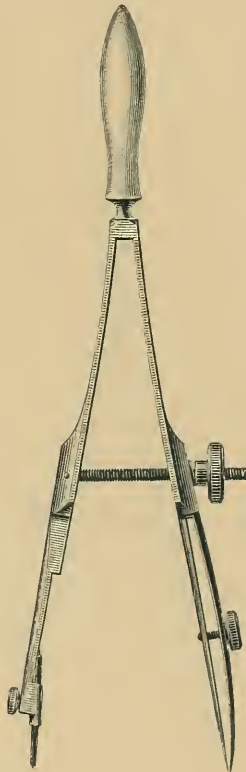
- |      |  |           |        |
|------|--|-----------|--------|
| 569. | Steel-spring Bow Pen, with Needle Point, Ivory Handle, 3 in..                            | each      | \$2.50 |
| 570. | “ “ Pencil, “ “ “ “ 3 in..   | “         | 2.50   |
| 571. | Steel-spring Bows, set of 3, Nos. 565, 569, 570, in Morocco Case, lined with silk velvet | ..... set | 8.00   |

Each instrument stamped H. S. C. Co. and with trademark 

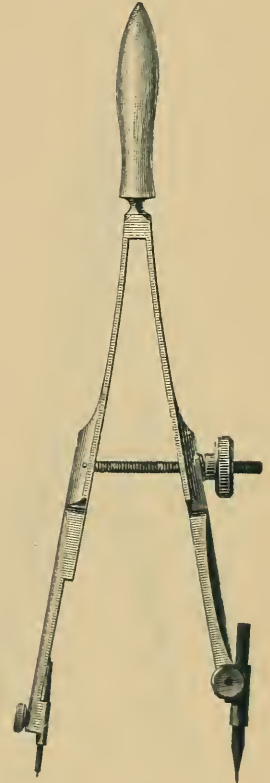
Illustrations  $\frac{3}{4}$  size.



No. 572.



573.



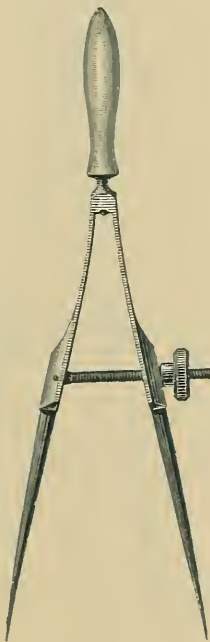
574.

- |      |   |      |         |
|------|---|------|---------|
| 572. | Steel-spring Bow Dividers, Ivory Handle, $4\frac{3}{4}$ in. . . . .                                 | each | \$ 2.40 |
| 573. | “ “ Pen, with Needle Point, Ivory Handle, $4\frac{3}{4}$ in. “                                      |      | 3.00    |
| 574. | “ “ Pencil, with Needle Point, Ivory Handle,<br>$4\frac{3}{4}$ in. . . . .                          | “    | 3.00    |
| 575. | Steel-spring Bows, set of 3, Nos. 572, 573, 574, in Morocco<br>Case lined with silk velvet. . . . . | set  | 10.00   |

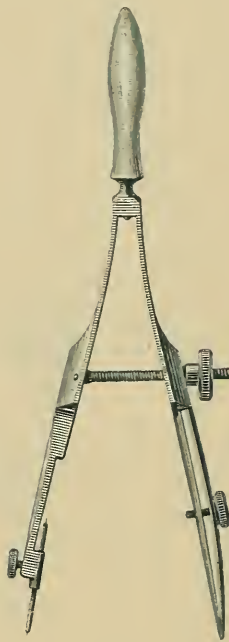
Each instrument stamped H. S. C. Co. and with trademark



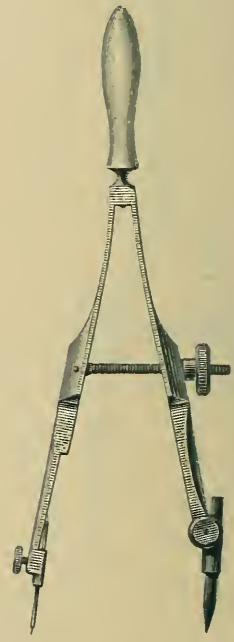
Illustrations  $\frac{2}{3}$  size.



No. 576.




577.



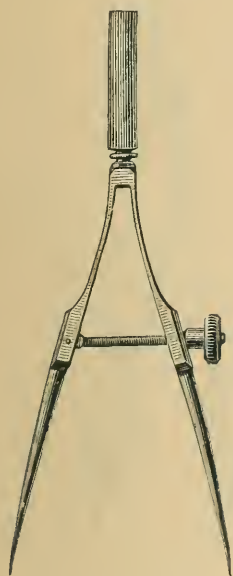
578.

576.	Steel-spring Bow Dividers, with Ivory Handle, $3\frac{1}{2}$ in. . . . .	each	\$2.10
577.	“ “ Pen, with Needle Point, Ivory Handle, $3\frac{1}{2}$ in. “		2.50
578.	“ “ Pencil, with Needle Point, Ivory Handle, $3\frac{1}{2}$ in. . . . .	“	2.50
579.	Steel-spring Bows, set of 3, Nos 576, 577, 578, in Morocco Case lined with silk velvet . . . . .	set	8.70

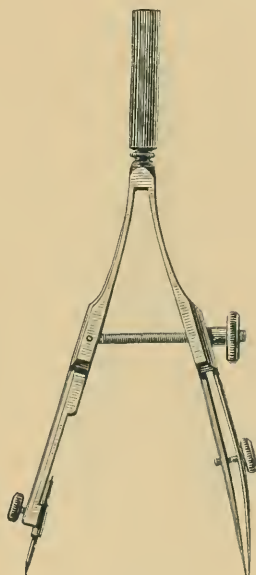


Each instrument stamped H. S. C. Co. and with trademark 

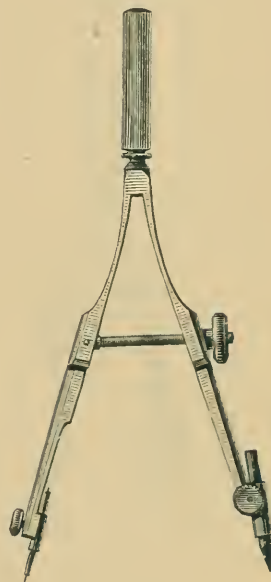
Illustrations  $\frac{2}{3}$  size.



No. 580.



581.

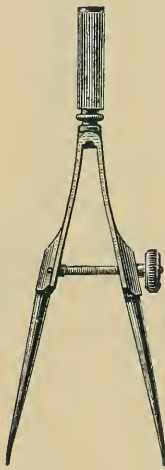


582.

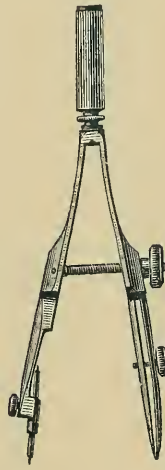
- |      |  |      |        |
|------|--|------|--------|
| 580. | Steel-spring Bow Dividers, German Silver Handle, $3\frac{1}{2}$ in. . . . .                      | each | \$2.00 |
| 581. | “ “ Pen “ “ “ and Needle Point, $3\frac{1}{2}$ in. . . . .                                       | “    | 2.50   |
| 582. | Steel-spring Bow Pencil, German Silver Handle and Needle Point, $3\frac{1}{2}$ in. . . . .       | “    | 2.50   |
| 583. | Steel-spring Bows, set of 3, Nos. 580, 581, 582, in Morocco Case lined with silk velvet. . . . . | set  | 8.50   |

Each instrument stamped H. S. C. Co. and with trademark 

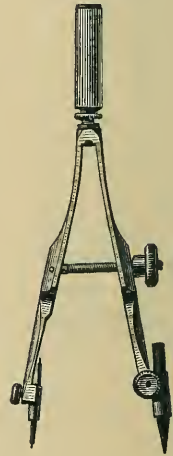
Illustrations  $\frac{2}{3}$  size.



No. 584.




585.



586.

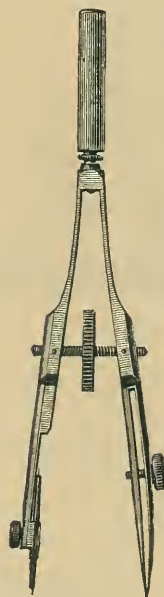
- |      |  |      |        |
|------|--|------|--------|
| 584. | Steel-spring Bow Dividers, German Silver Handle, 3 in.....                                   | each | \$1.75 |
| 585. | “ “ Pen, “ “ “ and Needle Point, 3 in.....   | “    | 2.25   |
| 586. | Steel-spring Bow Pencil, German Silver Handle and Needle Point, 3 in.....                    | “    | 2.25   |
| 587. | Steel-spring Bows, set of 3, Nos. 584, 585, 586, in Morocco Case lined with silk velvet..... | set  | 7.50   |

Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{3}{4}$  size.



No. 588.



589.



590.

- |      |   |        |
|------|---|--------|
| 588. | Steel-spring Bow Dividers, with German Silver Handle, $3\frac{1}{2}$ in. . . each             | \$2.20 |
| 589. | Steel-spring Bow Pen, with Needle Point, German Silver Handle, $3\frac{1}{2}$ in . . . . .    | “ 2.75 |
| 590. | Steel-spring Bow Pencil, with Needle Point, German Silver Handle, $3\frac{1}{2}$ in . . . . . | “ 2.75 |

These bows have a screw on a right and left thread.

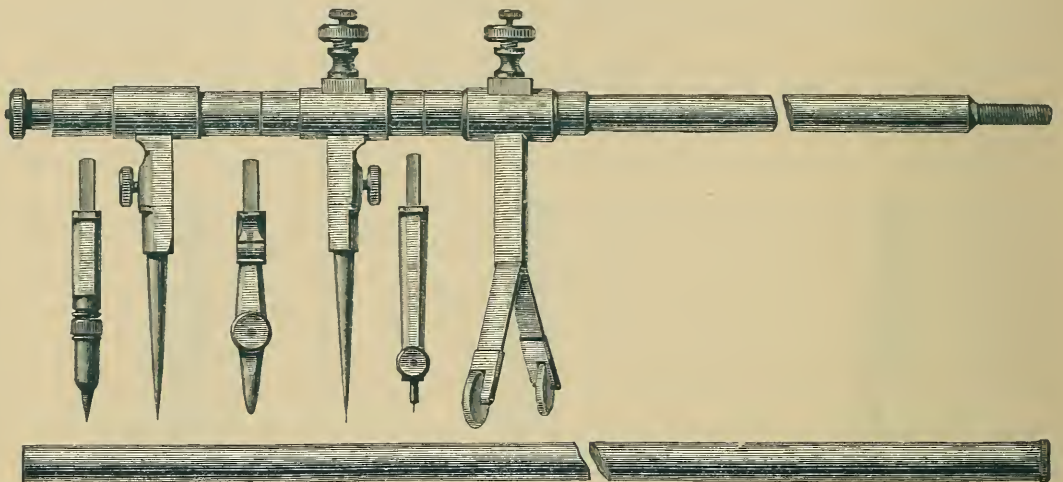
- |      |   |      |
|------|---|------|
| 591. | Steel-spring Bows, set of 3, Nos. 588, 589, 590, in Morocco Case, lined with silk velvet. . . . . set | 9.25 |
|------|---|------|

H. S. CROCKER COMPANY

SAN FRANCISCO  
AND  
SACRAMENTO

Each instrument stamped H. S. C. Co. and with trademark

Illustrations  $\frac{3}{4}$  size.

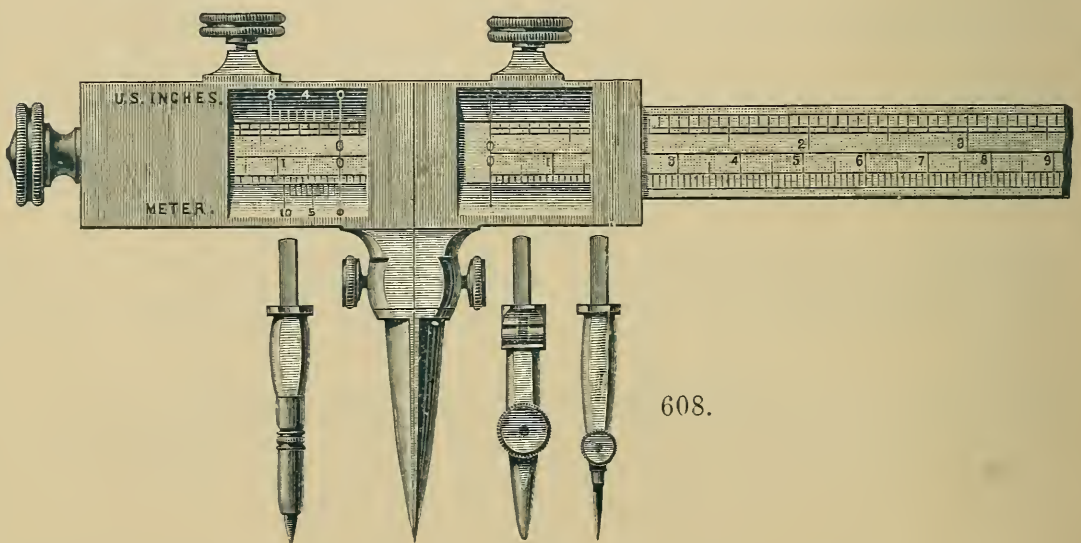


No. 600.

603.

- |      |  |      |         |
|------|--|------|---------|
| 600. | Tubular Beam Compasses, 18 inch, 2 bars, with 2 Steel Points,<br>Pen, Pencil and Needle Point..... | each | \$ 9.75 |
| 601. | Tubular Beam Compasses, 24 inch, 3 bars, with etc., .....  | "    | 10.75   |
| 602. | " " " 36 " 3 " with etc., .....  | "    | 14.00   |
| 603. | Wheel Attachment for No. 600 or 601.....   | "    | 2.25    |
| 604. | " " " 602.....   | "    | 2.25    |

	No. 600.	601.	602.	603.	604.
Morocco Cases .....	each \$1.80	2.00	2.75	1.35	1.35



608.

- |      |  |      |         |
|------|--|------|---------|
| 608. | Beam Compass with rectangular metal bar, 44 inches long<br>divided $\frac{1}{20}$ in. and vernier to $\frac{1}{200}$ in., and to 1 meter divided<br>to millimeter, and by vernier to $\frac{1}{10}$ millimeter. In<br>polished Mahogany Case ..... | each | \$35.00 |
|------|--|------|---------|


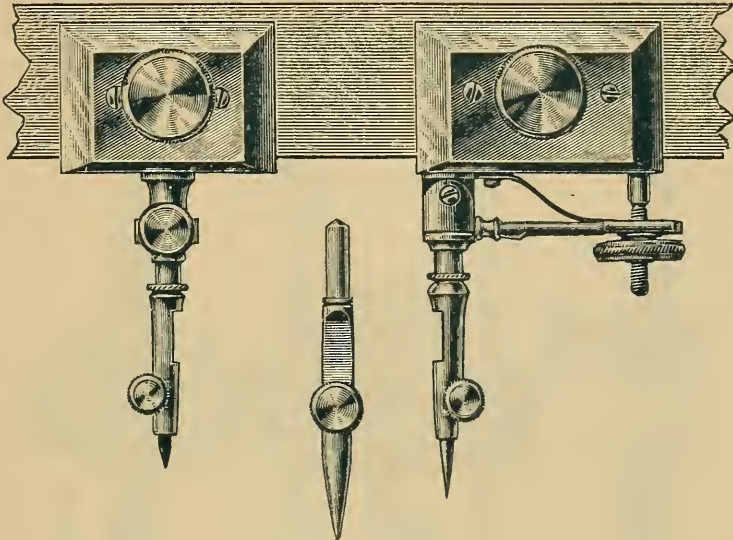
Each instrument stamped H. S. C. Co. and with trademark 

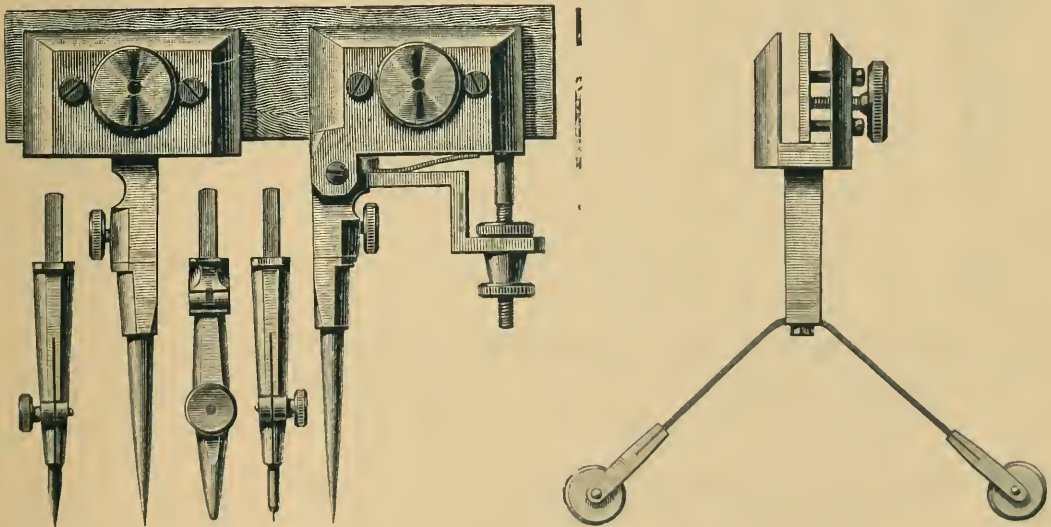
Illustration  $\frac{2}{3}$  size.



No. 609.

609. Beam Compasses, to fit any straight edge, with two Needle Points, exchangeable for lead and Pen Point, Micrometer adjustment . . . . . each \$ 7.50

Illustrations  $\frac{2}{3}$  size.




No. 610.

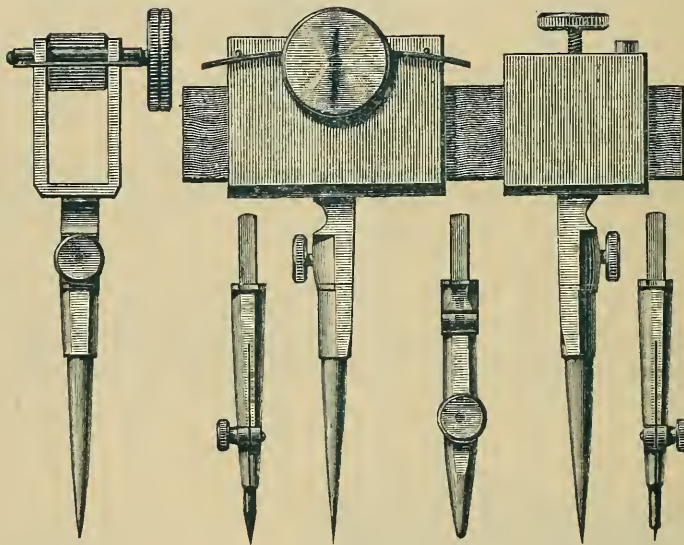
611.

610. Beam Compasses, with two Steel Points, Pen, Pencil and Needle Point . . . . . each \$ 8.80  
611. Wheel Attachment for No. 610 . . . . . " 2.20

	No. 609.	610.	611.	610 & 611
Morocco Cases, lined with silk velvet.. each	\$1.50	1.70	1.40	2.10

Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{2}{3}$  size.




No. 612.

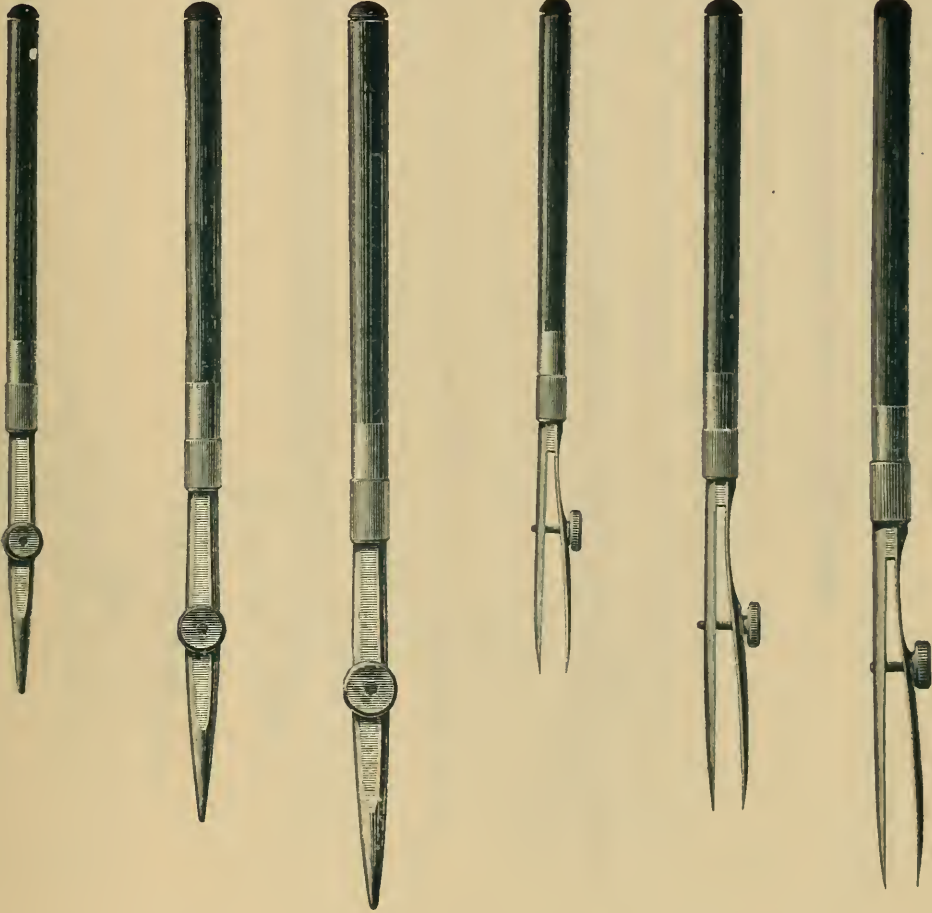
612.	Beam Compasses, with two Steel Points, Pen, Pencil and Needle Point .....	each	\$8.80
613.	Wheel Attachment for No. 612 .....	"	2.25
	Morocco Cases, lined with silk velvet... each		
		No. 612.	613.
		\$1.90	1.40
			612 and 613.
			2.00

H. S. CROCKER COMPANY

SAN FRANCISCO  
AND  
SACRAMENTO


Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{3}{4}$  size.

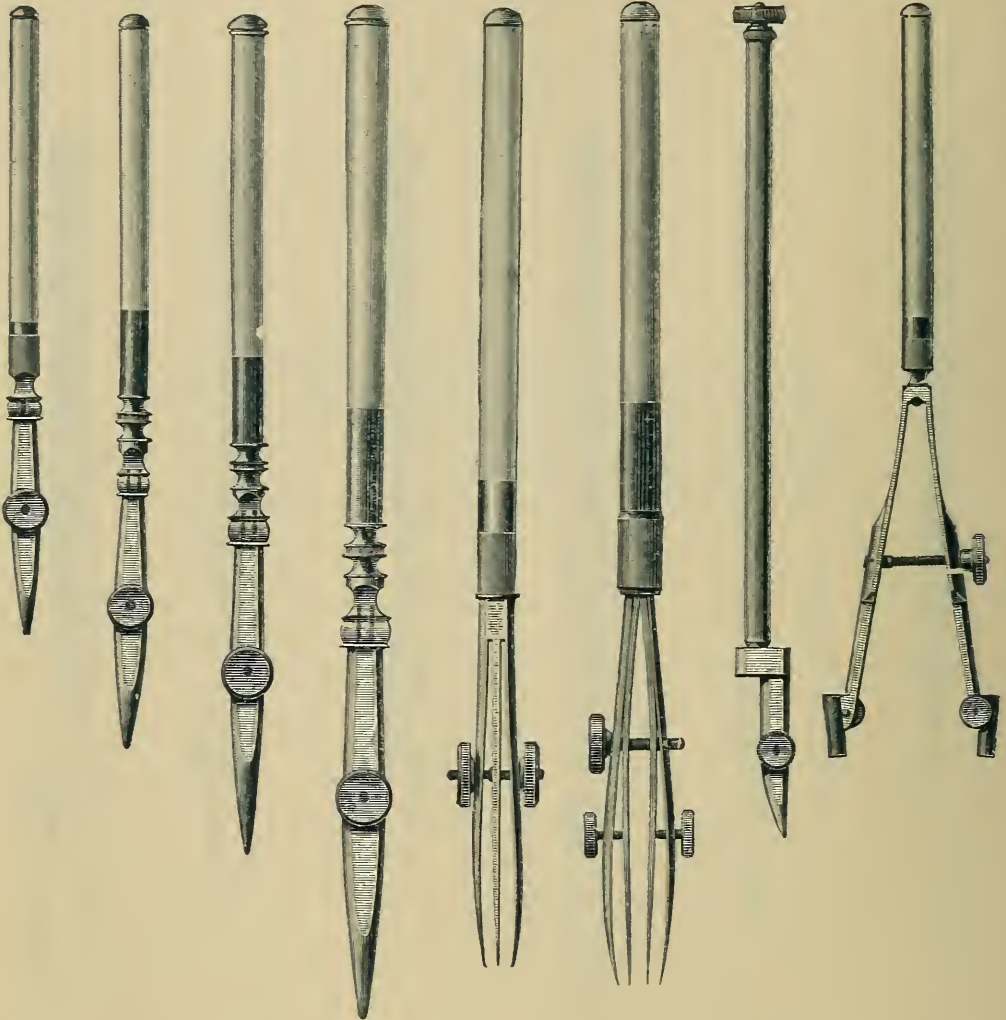


No. 620.                      621.                      622.                      623.                      624.                      625.

620.	Drawing Pen, Ebony Handle, 4½ in.....	each	\$ .85
621.	“ “ 5 “ .....	“	.95
622.	“ “ 5½ “ .....	“	1.05
623.	“ “ upper blade with spring 4½ in..	“	1.00
623 A.	“ Aluminum Handle, “ “ 4½ “ ..	“	1.20
624.	“ Ebony “ “ “ 5 “ ..	“	1.10
624 A.	“ Aluminum “ “ “ 5 “ ..	“	1.30
625.	“ Ebony “ “ “ 5½ “ ..	“	1.20
625 A.	“ Aluminum “ “ “ 5½ “ ..	“	1.40

Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{2}{3}$  size.




No. 626. 627. 628. 629. 635. 636. 640. 643.

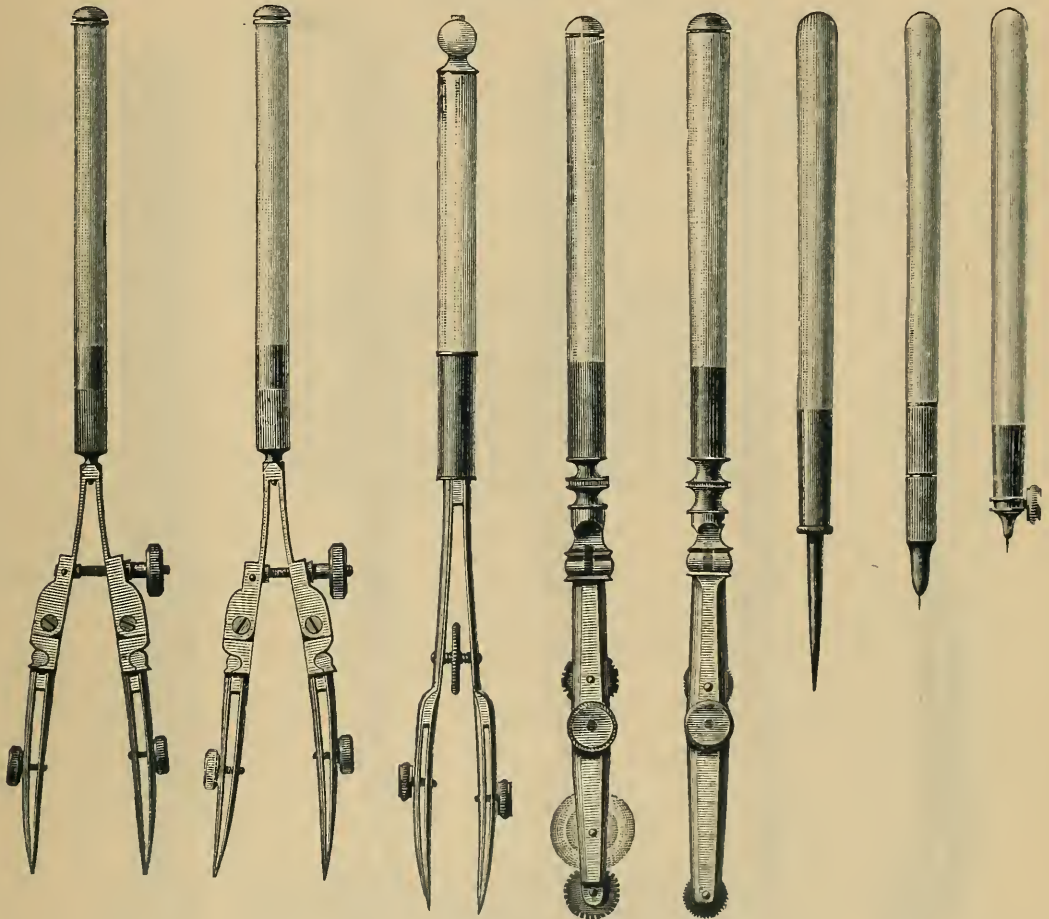
626.	Drawing Pen with Joint, Ivory Handle, 4 in.....	each	\$1.20
627.	“ “ and Pin, Ivory Handle, $4\frac{3}{4}$ in.....	“	1.55
627 A.	“ “ Aluminum Handle, $4\frac{3}{4}$ in..	“	1.75
628.	“ “ Ivory “ $5\frac{1}{2}$ “ ..	“	1.65
628 A.	“ “ Aluminum “ $5\frac{1}{2}$ “ ..	“	1.85
629.	“ “ Ivory “ $6\frac{1}{2}$ “ ..	“	1.75
629 A.	“ “ Aluminum “ $6\frac{1}{2}$ “ ..	“	1.95
630.	“ “ Ivory “ $5\frac{1}{2}$ in.,		
	Blades for red ink .....	“	1.70
635.	Border Pen, for broad lines, Ivory Handle, $6\frac{1}{2}$ in.....	“	2.60
636.	“ “ “ improved, $6\frac{1}{2}$ in..	“	3.00
Border Pen No. 636 may be used also as Railroad Pen by filling only the two outer pairs of blades with ink.			
640.	Curve Pen, Metal Handle, $4\frac{1}{2}$ in... ..	each	\$1.80
643.	Railroad Pencil, Ivory Handle, 5 in.....	“	3.00

Drawing Pens carefully set and sharpened, each 25 cents.



Each instrument stamped H. S. C. Co. and with trademark 


Illustrations  $\frac{2}{3}$  size.



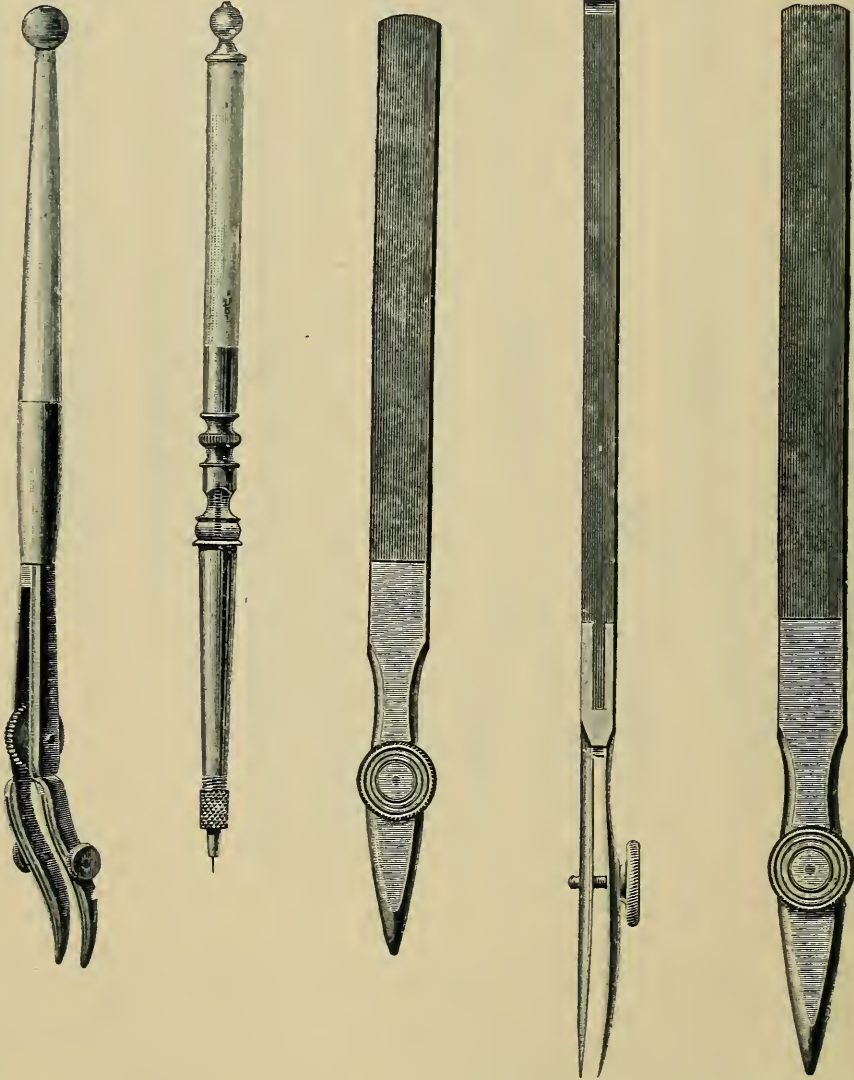
No. 644.          645.          646.          650.          651.          652.          653.          654.

644.	Railroad Pen, with Joints to blades and in shanks, Ivory Handle, 5½ inch ..	each	\$3.25
645.	Railroad Pen, with Joints to blades and in shanks, improved, having both pens bent in the same direction, Ivory Handle, 5½ in ..	"	3.25
646.	Railroad Pen, without Joints, Ivory Handle, 6 in ..	"	2.50
650.	Dotting Pen, with 6 Wheels,          "          6 " ..	"	3.50
651.	"          "          6 "          "          improved, 6 in ..	"	3.75
652.	Tracer, Ivory Handle ..	"	.85
653.	Pricker,          " ..	"	1.15
654.	"          " ..	"	1.00

Drawing Pens, carefully set and sharpened, each, 20 to 25 cents.

Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{2}{3}$  size.




No. 655      656.      657.      658.      659.

- |      |   |      |        |
|------|---|------|--------|
| 655. | Railroad Curve Pen, Ivory Handle, 6-in., improved . . . . .   | each | \$3.75 |
| 656. | Pricker, with joint and ring to pinch, Ivory Handle . . . . . | "    | 1.90   |

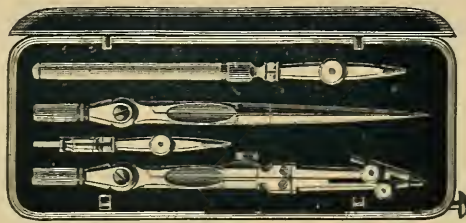
**Swedish Style Drawing Pens for Broad Lines.**

- |      |  |      |        |
|------|--|------|--------|
| 657. | Drawing Pen, upper blade with Spring, Ebony Handle, 5 in.. | each | \$1.60 |
| 658. | " " " " " " 6 " .. "                                       | "    | 1.70   |
| 659. | " " " " " " 7 " .. "                                       | "    | 1.80   |

Each instrument stamped H. S. C. Co. and with trademark 

GENUINE SUPERIOR  
**SWISS DRAWING INSTRUMENTS**

IN MOROCCO POCKET CASES, LINED WITH FINEST SILK VELVET,  
AND WITH BAR LOCK.



No. 660

660. Containing—

No. 471, Kern, Plain Divider, 3½ in. with handle.

No. 476, Kern, Compass, 3½ in, with fixed Needle Point, Pen and Pencil Point.

No. 626, Drawing Pen, 4 in., with Joint, Ivory Handle.  
Fine German Silver Box, with Leads.

Each ..... \$8.25



No. 661.

661. Containing—


No. 502, Hair spring Divider, 5 in.

No. 486, Kern, Compass, 4½ in., with fixed Needle Point, Steel, Pen, Pencil Point and Lengthening Bar.

No. 626, Drawing Pen, 4 in., with Joint, Ivory Handle.

No. 628, Drawing Pen, 5½ in., with Joint and Pin, Ivory Handle.  
Fine German Silver Box, with Leads.

Each ..... \$13.00

Each instrument stamped H. S. C. Co. and with trademark 

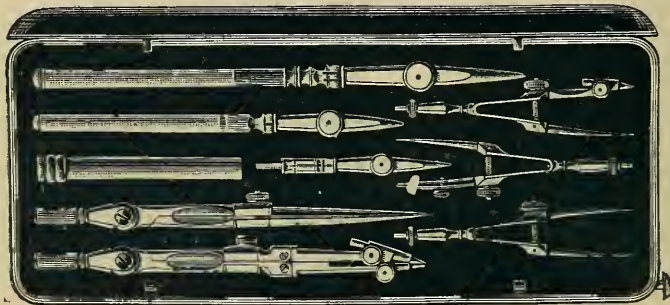


No. 662.

662. Containing—

- No. 471, Kern, Plain Divider, 3½ in., with Handle.
  - No. 476, Kern, Compass, 3½ in., with fixed Needle Point, Pen and Pencil Point.
  - Nos. 565, 566, 567, set Steel-spring Divider and Bows.
  - No. 626, Drawing Pen, 4 in., with Joint, Ivory Handle.
  - No. 628, Drawing Pen, 5½ in., with Joint and Pin, Ivory Handle.
- Fine German Silver Box, with Leads.

Each ..... \$16.50




No. 663.

663. Containing—

- No. 472, Kern, Hair-spring Divider, 3½ in., with Handle.
  - No. 476, Kern, Compass, 3½ in., with fixed Needle Point, Pen and Pencil Point.
  - Nos. 559, 560, 561, set Minute Steel-spring Divider and Bows.
  - No. 626, Drawing Pen, 4 in., with Joint Ivory Handle.
  - No. 628, Drawing Pen, 5½ in., with Joint and Pin, Ivory Handle.
- Fine German Silver Box, with Leads.

Each ..... \$17.00

Each instrument stamped H. S. C. Co. and with trademark 

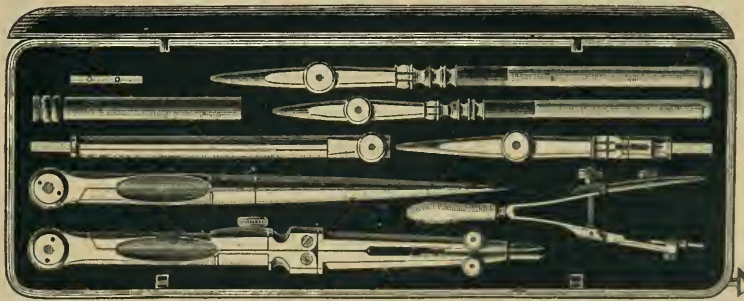


No. 664.

664. Containing—

- No. 471, Kern, Plain Divider, 3½ in., with Handle.
- No. 476, Kern, Compass, 3½ in., with fixed Needle Point, Pen and Pencil Point.
- No. 486, Kern, Compass, 4½ in., with fixed Needle Point, Steel Pen, Pencil Point and Lengthening Bar.
- No. 626, Drawing Pen, 4 in., with Joint, Ivory Handle.
- No. 628, Drawing Pen, 5½ in., with Joint and Pin, Ivory Handle. Fine German Silver Box, with leads.

Each ..... \$17.00




No. 665.

665. Containing—

- No. 500, Plain Divider, 5 in.
- No. 515, Compass, 5½ in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar.
- No. 569, Steel-spring Bow Pen.
- No. 627, Drawing Pen, 4¾ in., with Joint and Pin, Ivory Handle.
- No. 628, Drawing Pen, 5½ in., with Joint and Pin, Ivory Handle. Fine German Silver Box, with Leads.

Each ..... \$14.50

Each instrument stamped H. S. C. Co. and with trademark 



No. 666.

666. Containing—

No. 500, Plain Divider, 5 in.

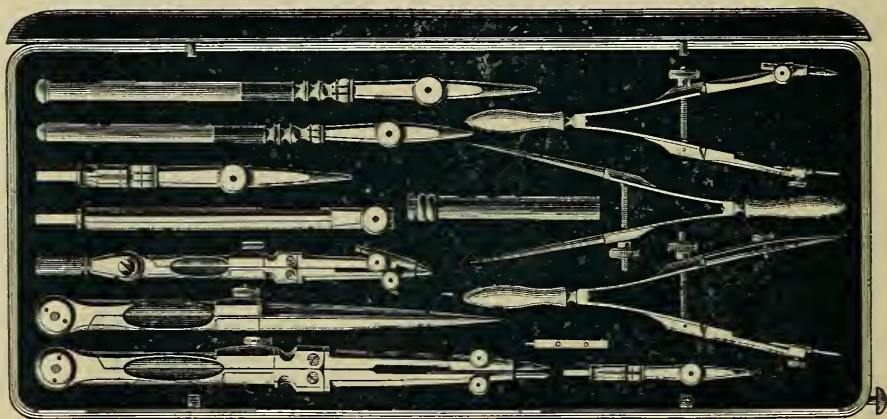
No. 515, Compass, 5½ in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar.

Nos. 565, 566, 567, set Steel-spring Divider and Bows.

Nos. 627, 628, each Drawing Pen, with Joint and Pin, Ivory Handle.

Fine German Silver Box, with Leads.

Each ..... \$18.25



No. 667.

667. Containing—

No. 476, Kern, Compass, 3½ in., with fixed Needle Point, Pen and Pencil Point.

No. 502, Hair-spring Divider, 5 in.


No. 515, Compass, 5½ in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar.

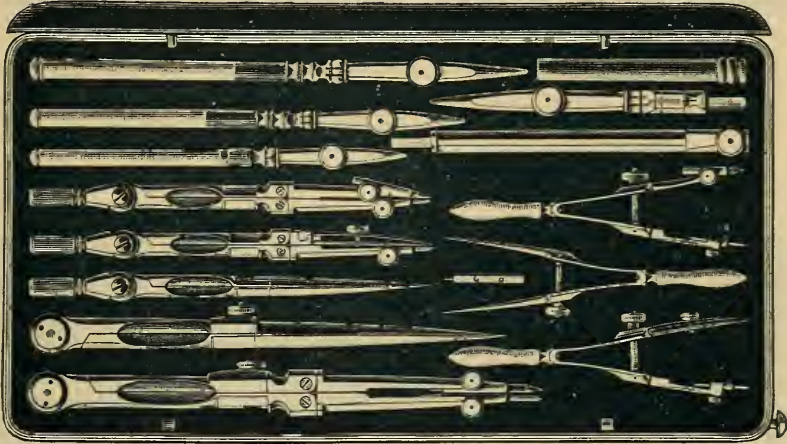
Nos. 565, 569, 570, set Steel-spring Divider and Bows.

Nos. 627, 628, each Drawing Pen, with Joint and Pin, Ivory Handle.

Fine German Silver Box, with Leads.

Each ..... \$24.50

Each instrument stamped H. S. C. Co. and with trademark 




668. Containing— No. 668.  
 No. 471, Kern, Plain Divider, 3½ in., with Handle.  
 No. 474, Kern, Compass, 3½ in., fixed Needle and Pen Point.  
 No. 475, Kern, Compass, 3½ in., fixed Needle and Pencil Point.  
 No. 502, Hair-spring Divider, 5 in.  
 No. 515, Compass, 5½ in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar.  
 Nos. 565, 569, 570, set Steel-spring Divider and Bows.  
 Nos. 626, 627, 628, each Drawing Pen, Ivory Handle.  
 Fine German Silver Box, with Leads.

Each ..... \$28.00



669. Containing— No. 669.  
 No. 627, Drawing Pen, with Joint and Pin, Ivory Handle, 4¾ in.  
 No. 628, Drawing Pen, with Joint and Pin, Ivory Handle, 5½ in.  
 No. 565, Steel-spring Bow Divider, with Ivory Handle, 3 in.  
 No. 569, " " Pen, " " " 3 in.  
 No. 570, " " Pencil, " " " 3 in.  
 No. 502, Hair-spring Divider, 5 in.  
 No. 517, Compass, 6 in., with 2 Steel Points, Pen, Pencil, Needle Point and Lengthening Bar.  
 Fine German Silver Box, with Leads. Compass Key.

Each ..... \$20.00

Each instrument stamped H. S. C. Co. and with trademark 



No. 670.

670. Containing—

No. 477, Kern, Compass,  $3\frac{1}{2}$  in., with 2 Steel Points, Pen, Pencil and Needle Point.

No. 502, Hair-spring Divider, 5 in.

No. 517, Compass, 6 in., with 2 Steel Points, Pen, Pencil, Needle Point and Lengthening Bar.

Nos. 565, 569, 570, set Steel-spring Divider and Bows.

No. 626, Drawing Pen, 4 in., with Joint, Ivory Handle.

No. 627, Drawing Pen,  $4\frac{3}{4}$  in., with Joint and Pin, Ivory Handle.

No. 628, Drawing Pen,  $5\frac{1}{2}$  in., with Joint and Pin, Ivory Handle.

Fine German Silver Box, with Leads.

Each ..... \$27.00

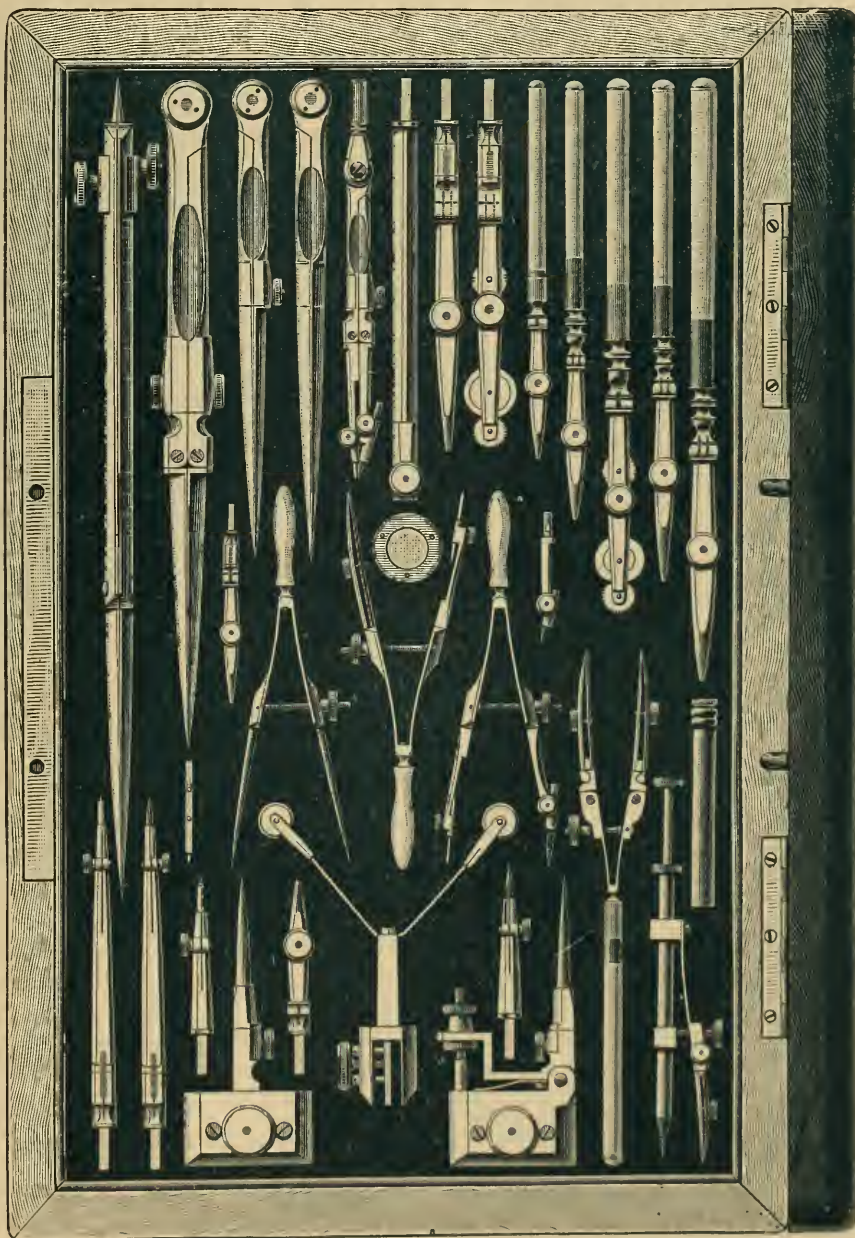


H. S. GROCKER COMPANY


SAN FRANCISCO  
AND  
SACRAMENTO

Each instrument stamped H. S. C. Co. and with trademark 

FINE POLISHED PALISSANDER WOOD CASE, WITH EBONY CORNERS,  
LOCK AND TRAY, AND AMPLE SPACE FOR  
COLORS, BRUSHES, ETC.



No. 671.


Each instrument stamped H. S. C. Co. and with trademark 

**FINE POLISHED PALISSANDER WOOD CASE, WITH EBONY CORNERS,  
LOCK AND TRAY, AND AMPLE SPACE FOR  
COLORS, BRUSHES, ETC.**

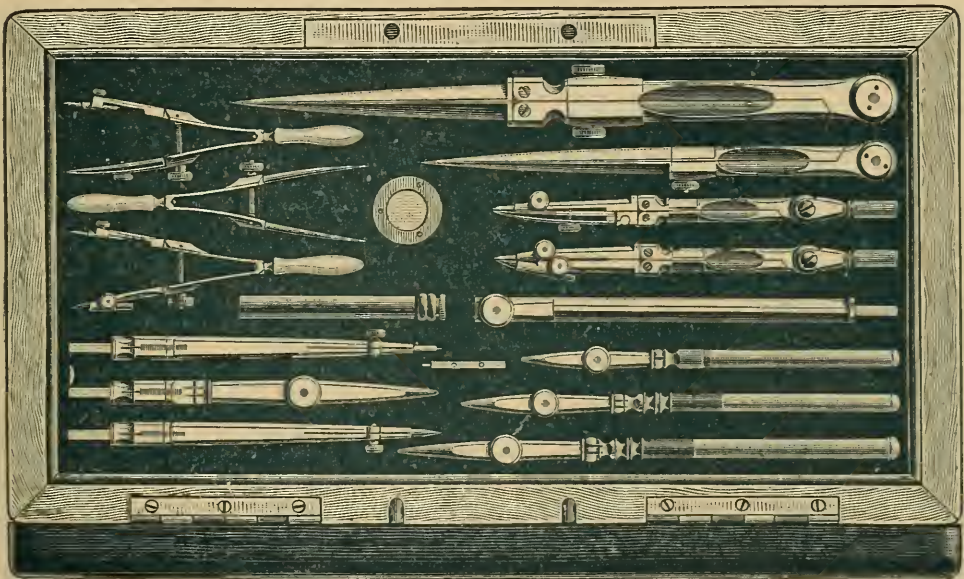
671. Containing—

- No. 626, Drawing Pen, with Joint, Ivory Handle, 4 in.
- No. 627, “ “ and Pin, Ivory Handle, 4 $\frac{3}{4}$  in.
- No. 628, “ “ “ “ 5 $\frac{1}{2}$  “
- No. 629, “ “ “ “ 6 $\frac{1}{2}$  “
- No. 644, Railroad Pen, with Joints to Blades and in Shanks,  
Ivory Handle, 5 $\frac{1}{2}$  in.
- No. 650, Dotting Pen, with 6 Wheels, Ivory Handle, 6 in.
- No. 554, Spring Bow Pen, with Pencil Point, Self-adjusting.
- No. 565, Steel-spring Bow Divider, with Ivory Handle, 3 $\frac{1}{2}$  in.
- No. 569, “ “ Pen “ “ 3 $\frac{1}{2}$  “
- No. 570, “ “ Pencil “ “ 3 $\frac{1}{2}$  “
- No. 476, Kern, Compass, 3 $\frac{1}{2}$  in., with fixed Needle Point, Pen and  
Pencil Point.
- No. 500, Plain Divider, 5 in.
- No. 502, Hair-spring Divider, 5 in.
- No. 520, Compass, 7 in., with 2 Steel Points, with Joint in each  
Leg, Pen, Pencil, Needle Point, Lengthening Bar and  
Dotting Pen, with 6 Wheels.
- No. 537, Proportional Divider, 8 $\frac{1}{2}$  in., divided for lines and  
circles, with Rack-movement.
- No. 610, Beam Compass, with 2 Steel Points, Pen, Pencil and  
Needle Point, with Micrometer Adjustment.
- No. 611, Wheel Attachment, for No. 510.
- Box for leads.
- Horn Center, with German Silver Edge.
- Compass Key, with Screw-driver.

Each ..... \$75.00

Each instrument stamped H. S. C. Co. and with trademark 

FINE POLISHED PALISSANDER WOOD CASE, WITH EBONY CORNERS,  
LOCK AND TRAY, AND AMPLE SPACE FOR  
COLORS, BRUSHES, ETC.



No. 672.

672. Containing—

- No. 626, Drawing Pen, with Joint, Ivory Handle, 4 in.
- No. 627, " " and Pin, Ivory Handle, 4  $\frac{3}{4}$  in.
- No. 628, " " " " 5  $\frac{1}{2}$  "
- No. 565, Steel-spring Bow Divider, with Ivory Handle, 3 "
- No. 569, " " Pen, " " 3 "
- No. 570, " " Pencil, " " 3 "
- No. 474, Kern, Compass, 3  $\frac{1}{2}$  in., with fixed Needle and Pen Point.
- No. 475, " 3  $\frac{1}{2}$  " " " Pencil "
- No. 502, Hair-spring Divider, 5 in.
- No. 490, Kern Compass, 6  $\frac{1}{2}$  in., with 2 Steel Points, with Joint in each Leg, Pen, Pencil, Needle Point and Lengthening Bar.
- Box for Leads.
- Horn Center, with German Silver Edge.
- Compass Key, with Screw driver.

Each .....\$39.00

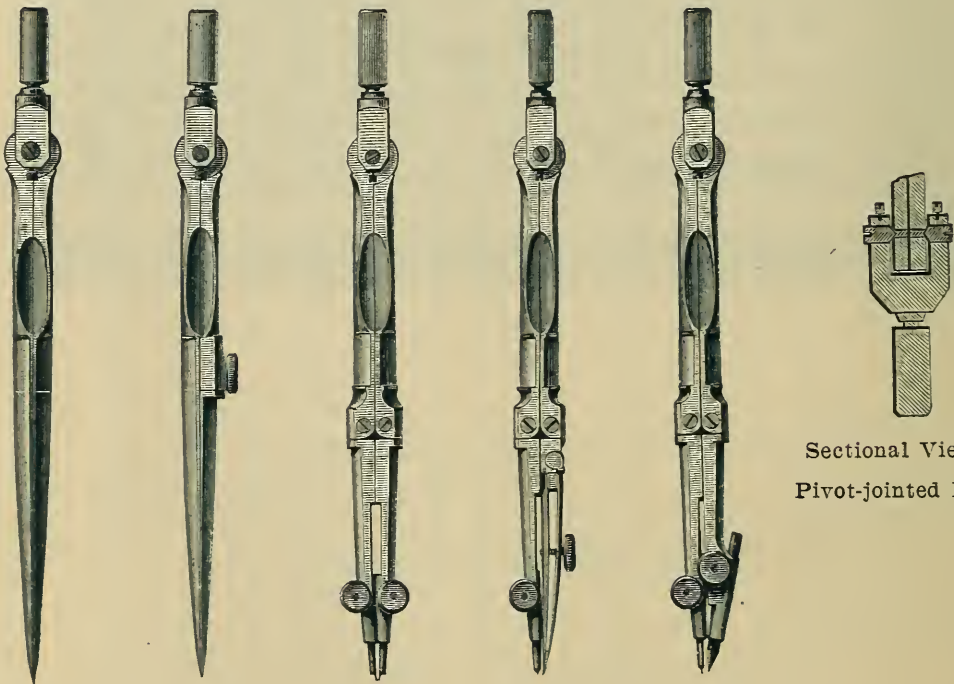
Each instrument stamped H. S. C. Co. and with trademark 

GENUINE SUPERIOR  
**SWISS DRAWING INSTRUMENTS.**

LIGHT MODEL.

WITH PERFECT PIVOT-JOINTED HEADS.


Illustrations  $\frac{3}{8}$  size.



No. 700.      701.      702.      703.      704.

Sectional View of  
Pivot-jointed Head.

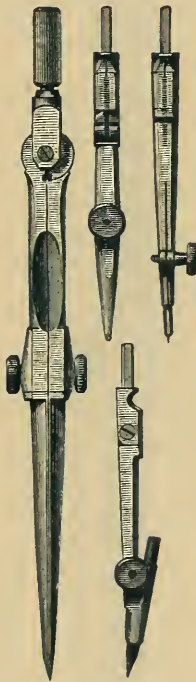
700.	Plain Dividers, $3\frac{1}{2}$ in.....	each	\$2.00
701.	Hair-spring Dividers, $3\frac{1}{2}$ in.....	"	2.60
702.	Compasses, $3\frac{1}{2}$ in., with two fixed Needle Points, Bow Dividers	"	3.25
703.	" $3\frac{1}{2}$ "      "      fixed Needle and Pen Point, Bow Pen	"	3.40
704.	" $3\frac{1}{2}$ "      "      "      Pencil " Bow Pencil	"	3.25

Each instrument stamped H. S. C. Co. and with trademark 

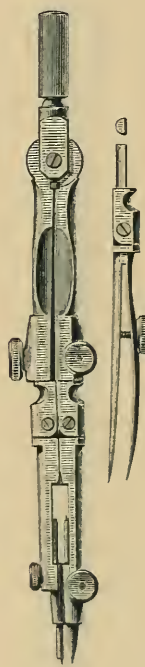
Illustrations  $\frac{3}{4}$  size.



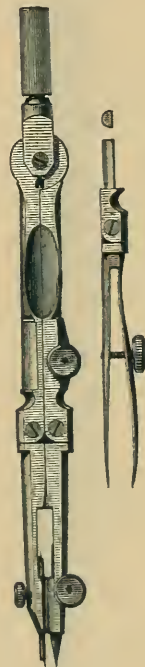
No. 705.



706.




707.



708.

- |      |  |      |        |
|------|--|------|--------|
| 705. | Compasses, $3\frac{1}{2}$ in., with fixed Needle Point, Pen and Pencil<br>Point .....                  | each | \$4.75 |
| 706. | Compasses, $3\frac{1}{2}$ in., with 2 Steel Points, Pen, Pencil and Needle<br>Point .....              | "    | 5.25   |
| 707. | Compasses, $3\frac{1}{2}$ in., with fixed Needle Point, Pen and Pencil<br>Point, with Hair Spring..... | "    | 5.75   |
| 708. | Compasses, $3\frac{1}{2}$ in., with fixed Needle Point, Pen and Pencil<br>Point .....                  | "    | 4.75   |

Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{3}{4}$  size.



No. 709.



711.



712.



714.

709.	Plain Dividers, $4\frac{1}{2}$ in. ....	each	\$2.10
710.	“ 5 “ .....	“	2.35
711.	“ 6 “ .....	“	2.75
712.	Hair-spring Dividers, $4\frac{1}{2}$ in. ....	“	3.00
713.	“ “ 5 “ .....	“	3.25
714.	“ “ 6 “ .....	“	3.65

Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{3}{4}$  size.



No. 715.



716.




717.

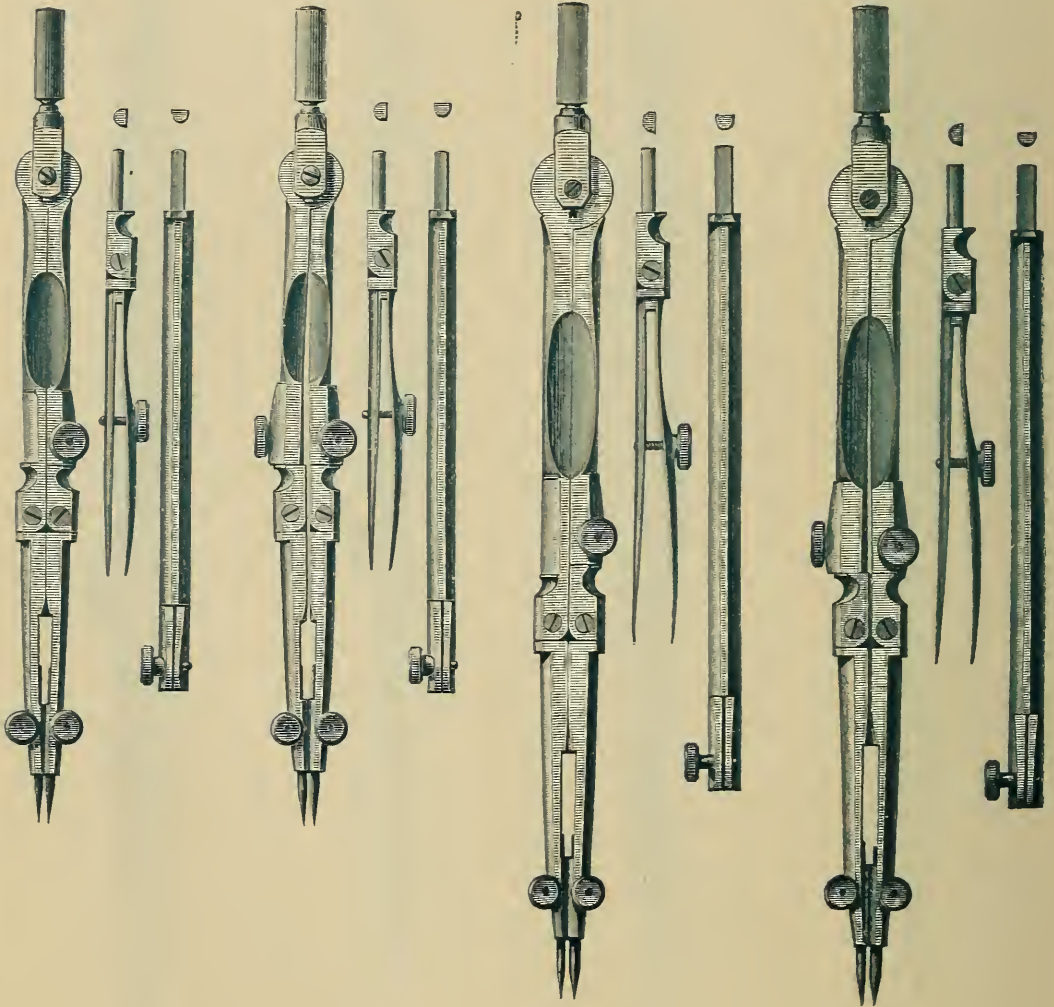


718.

715.	Plain Divider, 5 in., Points Rounded . . . . .	each	\$2.40
716.	“ “ 6 “ “ “ . . . . .	“	2.80
717.	Hair-spring Divider, 5 in., Points Rounded . . . . .	“	3.25
718.	“ “ 6 “ “ “ . . . . .	“	3.65

Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{3}{4}$  size.



No. 720.


722.

724.

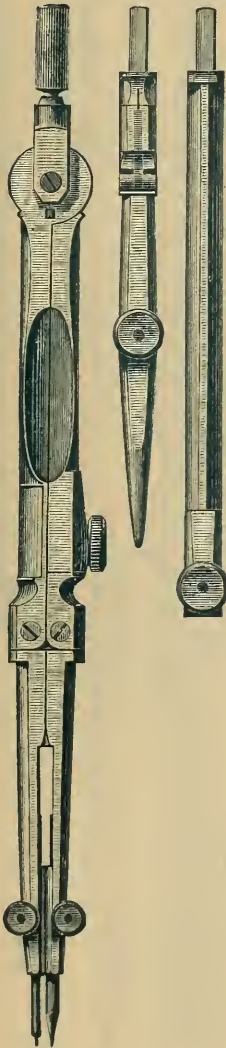
726.

- |      |   |      |        |
|------|---|------|--------|
| 720. | Compasses, $4\frac{1}{2}$ in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar . . . . .                   | each | \$5.80 |
| 722. | Compasses, $4\frac{1}{2}$ in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar, with Hair Spring . . . . . | "    | 7.00   |
| 724. | Compasses, $5\frac{1}{2}$ in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar . . . . .                   | "    | 6.50   |
| 726. | Compasses, $5\frac{1}{2}$ in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar, with Hair Spring . . . . . | "    | 7.50   |

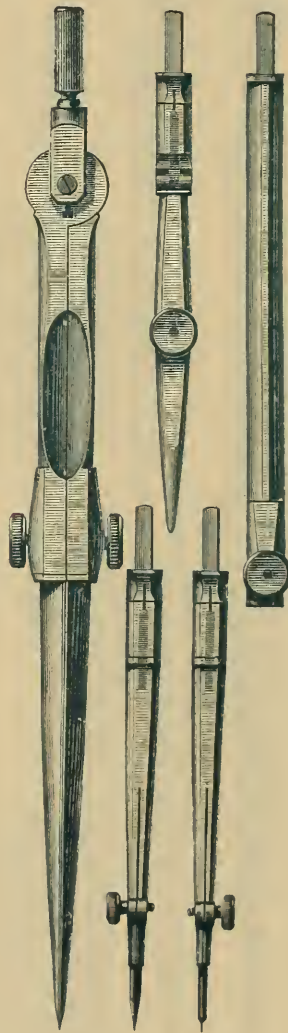


Each instrument stamped H. S. C. Co. and with trademark 

Illustrations  $\frac{3}{4}$  size.




No. 728.

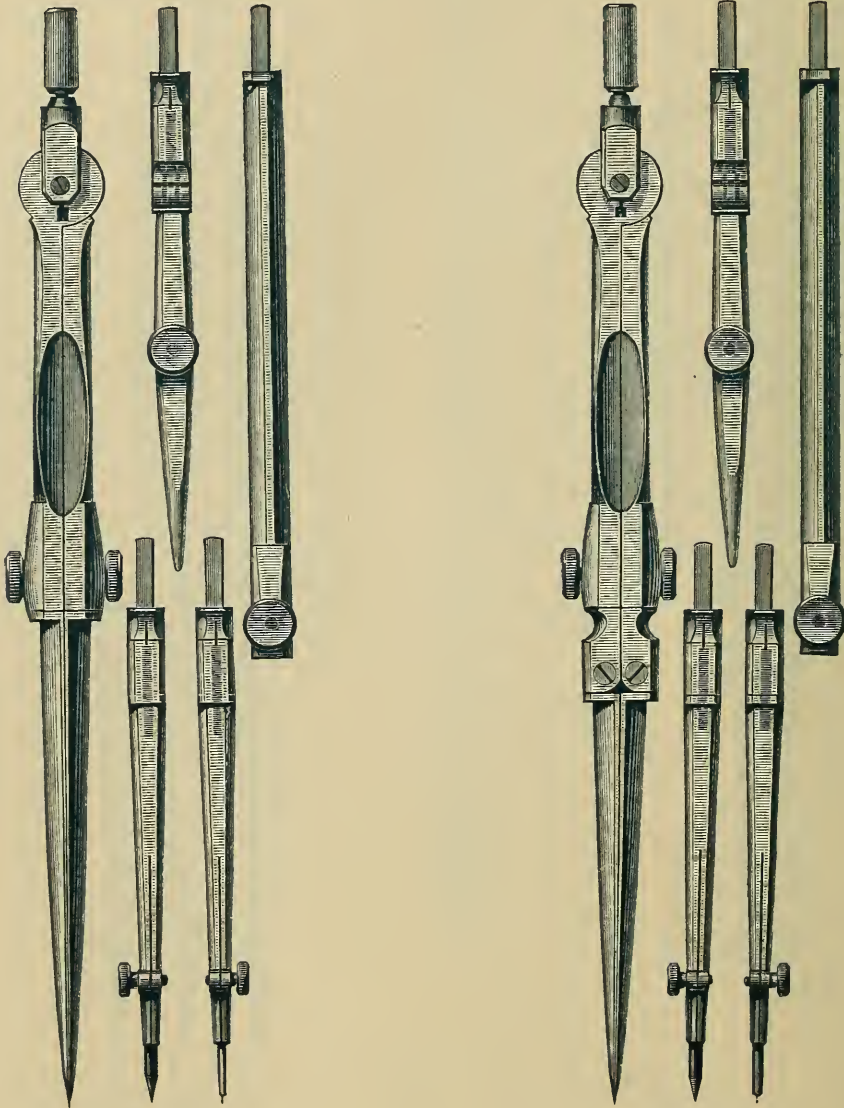


729.

728. Compasses,  $5\frac{1}{2}$  in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar . . . . . each \$5.80
729. Compasses,  $5\frac{1}{2}$  in., with 2 Steel Points, Pen, Pencil, Needle Point and Lengthening Bar . . . . . " 6.70

Each instrument stamped H. S. C. Co. and with trademark 


Illustrations  $\frac{3}{4}$  size.



No. 730.

731.

730. Compasses, 6 in., with 2 Steel Points, Pen, Pencil, Needle Point and Lengthening Bar.....each \$7.25
731. Compasses, 6 in., with 2 Steel Points, with Joint in each Leg, Pen, Pencil, Needle Point and Lengthening Bar..... “ 9.00

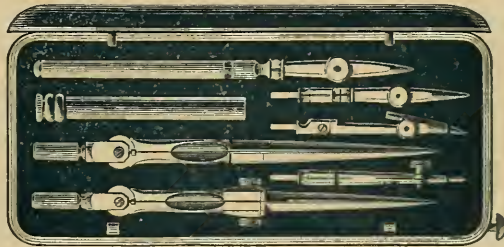
Each instrument stamped H. S. C. Co. and with trademark 

GENUINE SUPERIOR  
**SWISS DRAWING INSTRUMENTS.**

LIGHT MODEL.

WITH PERFECT PIVOT-JOINTED HEADS.

In Morocco Pocket Cases, Lined with Finest Silk Velvet, and with Bar Lock.



No. 732.

732. Containing—

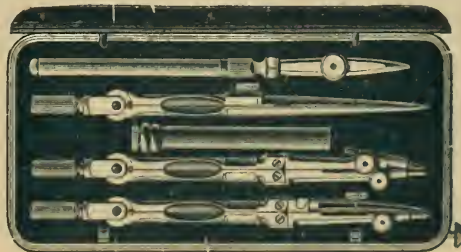
No. 626, Drawing Pen, with Joint, Ivory Handle, 4 in.

No. 700, Plain Divider, 3½ in.

No. 706, Compass, 3½ in., with 2 Steel Points, Pen, Pencil and Needle Point.

Box for Leads.

Each. . . . . \$10.00



No. 733.

733. Containing—

No. 626, Drawing Pen, with Joint, Ivory Handle, 4 in.


No. 701, Hair-spring Divider, 3½ in.

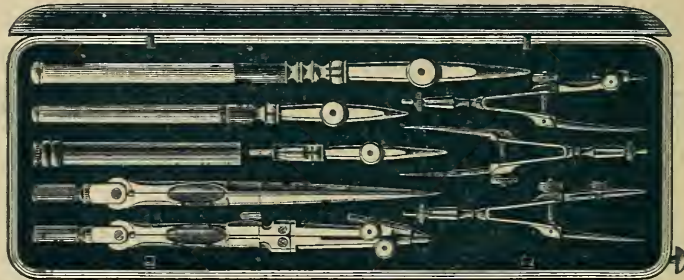
No. 703, Compass, 3½ in., with fixed Needle and Pen Point.

No. 704, " 3½ " " " Pencil "

Box for Leads.

Each. . . . . \$12.00

Each instrument stamped H. S. C. Co. and with trademark 



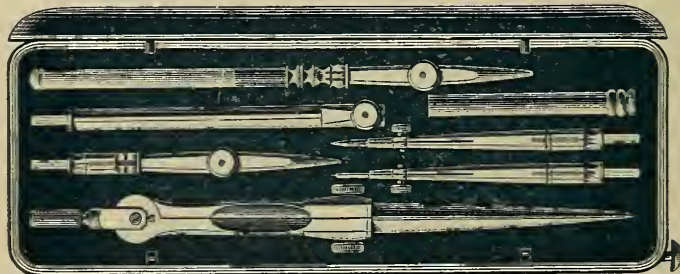
No. 734.

734. Containing—

- No. 626, Drawing Pen, with Joint, Ivory Handle, 4 in.
- No. 628, “ “ and Pin, Ivory Handle, 5½ in.
- No. 559, Minute Steel-spring Bow Divider, Metal Handle, 2½ in.
- No. 560, “ “ “ Pen, Metal Handle, 2½ in.
- No. 561, “ “ “ Pencil, Metal Handle, 2½ in.
- No. 700, Plain Divider, 3½ in.
- No. 705, Compass, 3½ in., with fixed Needle Point, Pen and Pencil Point.

Box for Leads.

Each..... \$17.00




No. 735.

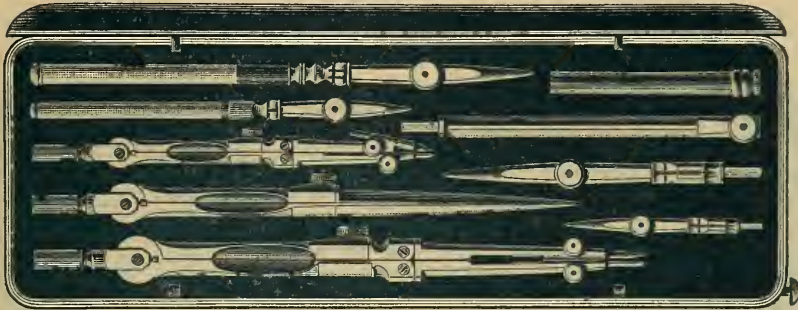
735. Containing—

- No. 628, Drawing Pen, with Joint and Pin, Ivory Handle, 5½ in.
- No. 729, Compass, 5½ in., with 2 Steel Points, Pen, Pencil, Needle Point and Lengthening Bar.

Box for Leads.

Each..... \$10.25

Each instrument stamped H. S. C. Co. and with trademark 



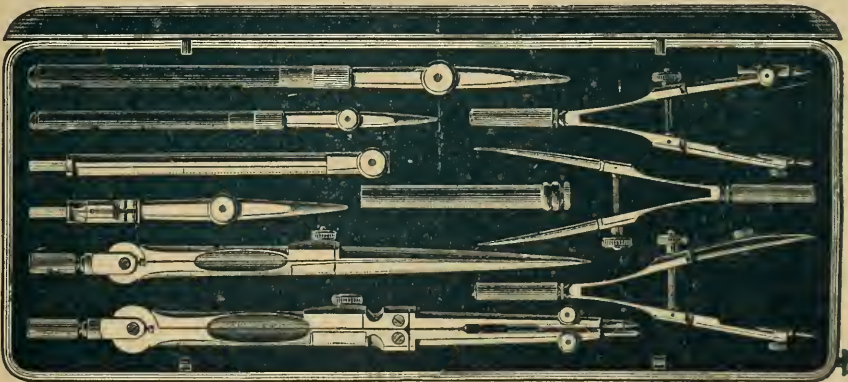
No. 736.

736. Containing—

- No. 626, Drawing Pen, with Joint, Ivory Handle, 4 in.
- No. 628 " " " and Pin, Ivory Handle, 5½ in.
- No. 705, Compass, 3½ in., with fixed Needle Point, Pen and Pencil Point.
- No. 713, Hair-spring Divider, 5 in.
- No. 728, Compass, 5½ in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar.

Box for Leads.

Each..... \$19.00



No. 737.


737. Containing—

- No. 620, Drawing Pen, Ebony Handle, 4½ in.
- No. 621, " " " " 5 "
- No. 580, Steel-spring Bow Divider, Metal Handle, 3½ in.
- No. 581, " " Pen, " " 3½ "
- No. 582, " " Pencil, " " 3½ "
- No. 713, Hair-spring Divider, 5 in.
- No. 728, Compass, 5½ in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar.

Box for Leads.

Each..... \$20.00

738. Containing same Nos. as in set 737, but with Drawing Pens Nos. 623 and 624, upper Blade with Spring (instead of Nos. 620 and 621) .....each 21.00

Each instrument stamped H. S. C. Co. and with trademark 



No. 739.

739. Containing—

No. 620, Drawing Pen, Ebony Handle, 4½ in.

No. 621, “ “ “ “ 5 “

No. 580, Steel-Spring Bow Divider, Metal Handle, 3½ in.

No. 581, “ “ Pen, “ “ 3½ in.

No. 582, “ “ Pencil, “ “ 3½ in.

No. 713, Hair-spring Divider, 5 in.

No. 729, Compass, 5½ in., with 2 Steel Points, Pen, Pencil,  
Needle Point and Lengthening Bar.


Box for Leads.

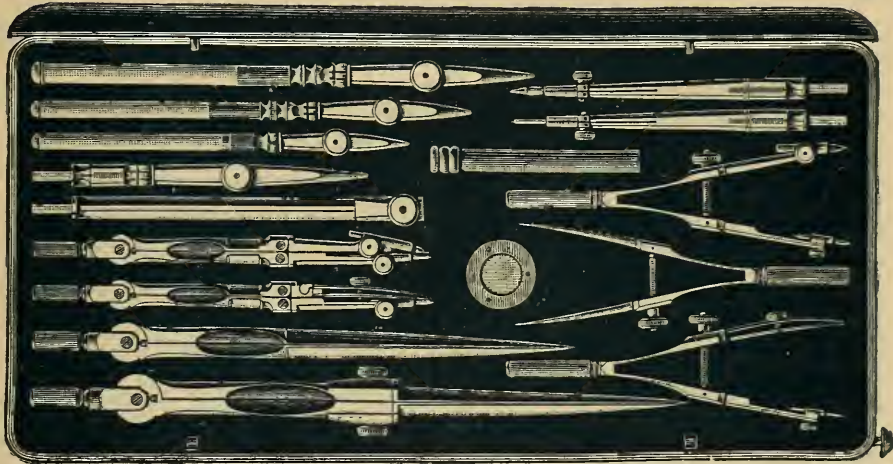
Each ..... \$21.50

740. Containing same Nos. as in set 739, but with Drawing Pens Nos.  
623 and 624, upper Blade with Spring (instead of Nos. 620 and  
621).....Each 22.50

741. Containing same Nos. as in set 738 but with Compass No. 724  
instead of No. 728.....each 22.00

742. Containing same Nos. as in set No. 739, but Nos. 627 and 628  
Pens, and extra compass No. 706 ..... Each 28.50

Each instrument stamped H. S. C. Co. and with trademark 



No. 743.

743. Containing—

No. 626, Drawing Pen, with Joint, Ivory Handle, 4 in.

No. 627, “ “ “ and Pin, Ivory Handle, 4 $\frac{3}{4}$  in.

No. 628, “ “ “ “ “ “ 5 $\frac{1}{2}$  “

No. 580, Steel-spring Bow Divider, Metal Handle, 3 $\frac{1}{2}$  in.

No. 581, “ “ Pen, “ “ 3 $\frac{1}{2}$  “

No. 582, “ “ Pencil, “ “ 3 $\frac{1}{2}$  “

No. 703, Compass, 3 $\frac{1}{2}$  in., with fixed Needle and Pen Point.

No. 704, “ 3 $\frac{1}{2}$  “ “ “ Pencil Point.


No. 710, Plain Divider, 5 in.

No. 730, Compass, 6 in., with 2 Steel Points, Pen, Pencil,  
Needle Point and Lengthening Bar.

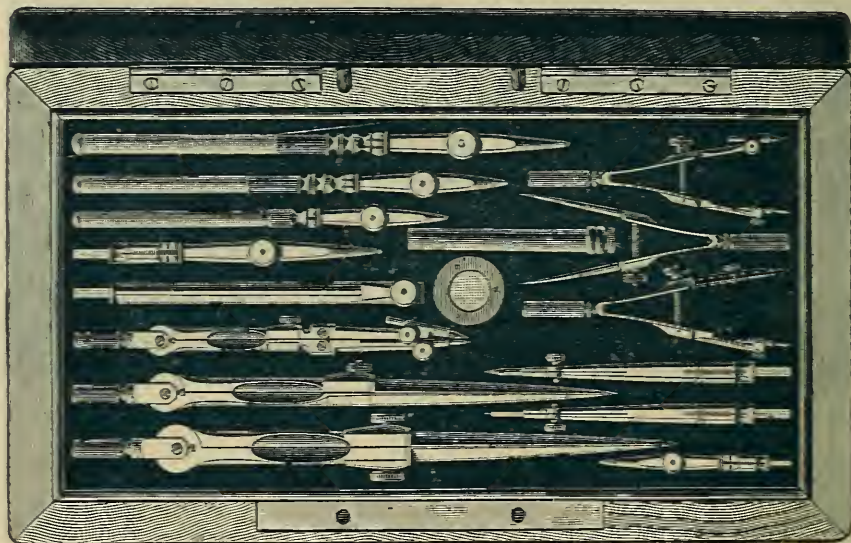
Box for Leads.

Horn Center with German Silver Edge.

Each ..... \$31.00

Each instrument stamped H. S. C. Co. and with trademark 

FINE POLISHED PALISSANDER WOOD CASE, WITH EBONY CORNERS,  
LOCK AND TRAY, AND AMPLE SPACE FOR  
COLORS, BRUSHES, ETC.



No. 744.

744. Containing—


- No. 626, Drawing Pen, with Joint, Ivory Handle, 4 in.
  - No. 627, " " and Pin, Ivory Handle,  $4\frac{3}{4}$  in.
  - No. 628, " " " "  $5\frac{1}{2}$  "
  - No. 584, Steel-spring Bow Divider, with Metal Handle, 3 in.
  - No. 585, " " Pen, " " 3 "
  - No. 586, " " Pencil, " " 3 "
  - No. 708, Compass,  $3\frac{1}{2}$  in., with fixed Needle Point, Pen and Pencil Point.
  - No. 713, Hair-spring Divider, 5 in.
  - No. 729, Compass,  $5\frac{1}{2}$  in., with 2 Steel Points, Pen, Pencil, Needle Point and Lengthening Bar.
- Box for Leads.  
Horn Center with German Silver Edge.

Each. .... \$35.50

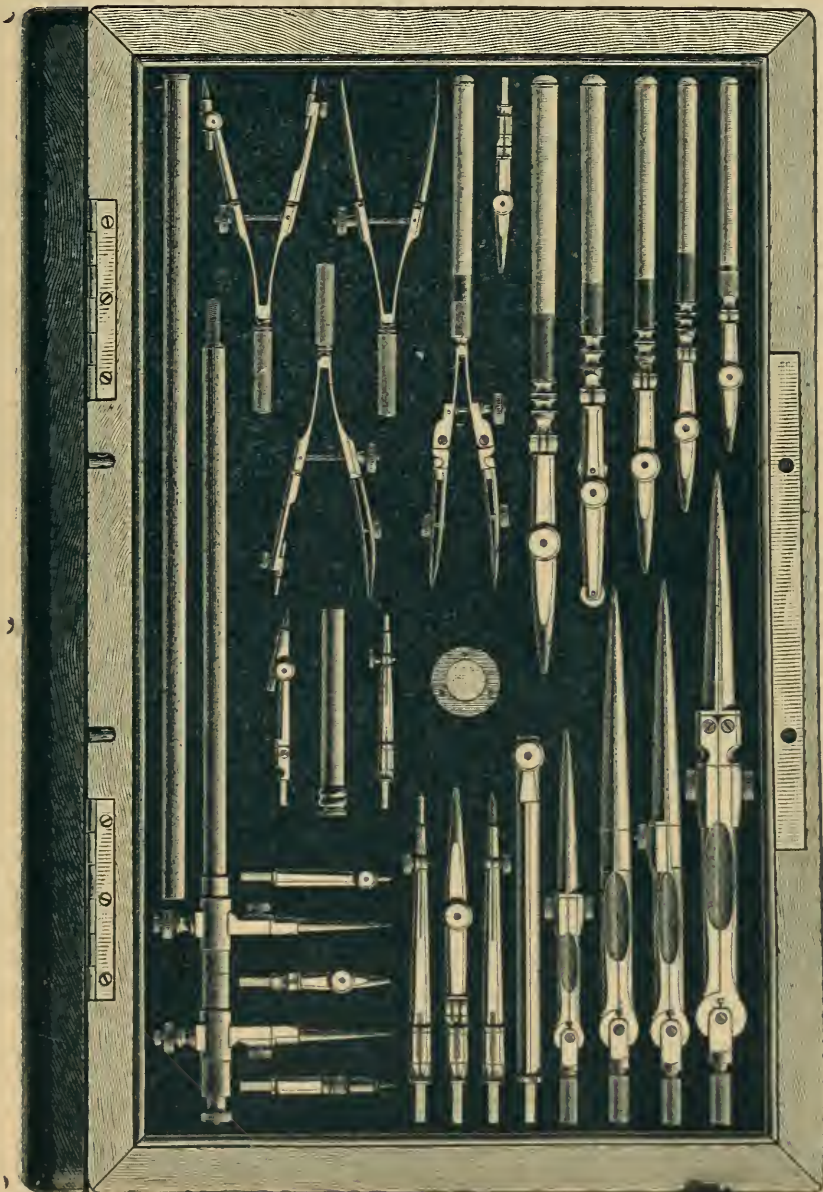


H. S. CROCKER COMPANY


SAN FRANCISCO  
AND  
SACRAMENTO

Each instrument stamped H. S. C. Co. and with trademark 

FINE POLISHED PALISSANDER WOOD CASE, WITH EBONY CORNERS,  
LOCK AND TRAY, AND AMPLE SPACE FOR  
COLORS, BRUSHES, ETC.



No. 745.

Each instrument stamped H. S. C. Co. and with trademark 

FINE POLISHED PALISSANDER WOOD CASE, WITH EBONY CORNERS,  
LOCK AND TRAY, AND AMPLE SPACE FOR  
COLORS, BRUSHES, ETC.

745. Containing—

- No. 626, Drawing Pen, with Joint, Ivory Handle, 4 in.
- No. 627, “ “ “ and Pin, Ivory Handle, 4¾ in.
- No. 628, “ “ “ “ 5½ “
- No. 629, “ “ “ “ 6½ “

No. 645, Railroad Pen, with Joints to Blades and in Shanks,  
improved, 5½ in.

No. 651, Dotting Pen, with 6 Wheels, improved, with Reservoir  
for Ink, 6 in.

No. 580, Steel-spring Bow Divider, Metal Handle, 3½ in.

No. 581, “ “ Pen, “ 3½ “

No. 582, “ “ Pencil, “ 3½ “

No. 600, Tabular Beam Compass, 18 in., 2 bars, with 2 Steel  
Points, Pen, Pencil and Needle Point.

No. 706, Compass, 3½ in., with 2 Steel Points, Pen, Pencil and  
Needle Point.

No. 710, Plain Divider, 5 in.


No. 713, Hair-spring Divider, 5 in.

No. 731, Compass, 6 in., with 2 Steel Points with Joint in each  
Leg, Pen, Pencil, Needle Point and Lengthening Bar.

Box for Leads.

Horn Center with German Silver Edge.

Each . . . . . \$64.00

Each instrument stamped H. S. C. Co. and with trademark 

# GENUINE SUPERIOR SWISS DRAWING INSTRUMENTS.

LIGHT MODEL.

WITH PERFECT PIVOT-JOINTED HEADS.

Rounded Steel Points, Pens without Joints, Upper Blade with Spring.  
Sets in Morocco Pocket Cases, Lined with Finest Silk Velvet, and with Bar Lock.



No. 746.

746. Containing—

- No. 623 A, Drawing Pen, upper blade with spring, Aluminum Handle, 4½ in.
- No. 624 A, Drawing Pen, upper blade with spring, Aluminum Handle, 5 in.
- No. 584, Steel-spring Bow Divider, Metal Handle, 3 in.
- No. 585, " " Pen, " " 3 "
- No. 586, " " Pencil, " " 3 "
- No. 717, Hair-spring Divider, 5 in., rounded Steel Points.
- No. 720, Compass, 4½ in., with fixed Needle Point, Pen, upper blade with spring, Pencil Point, and Lengthening Bar.

Box for Leads.


Each ..... \$20.00

747. Containing—

- No. 623 A, Drawing Pen, upper blade with spring, Aluminum Handle, 4½ in.
- No. 624 A, Drawing Pen, upper blade with spring, Aluminum Handle, 5 in.
- No. 584, Steel-spring Bow Divider, Metal Handle, 3 in.
- No. 585, " " Pen, " " 3 "
- No. 586, " " Pencil, " " 3 "
- No. 715, Plain Divider, 5 in., rounded Steel Points.
- No. 722, Compass, 4½ in., with fixed Needle Point, with Hair Spring, Pen, upper blade with spring, Pencil Point and Lengthening Bar.

Box for Leads.

Each ..... 21.00

Each instrument stamped H. S. C. Co. and with trademark 

748. Containing—

No. 623, Drawing Pen, upper blade with spring, Ebony Handle,  
4½ in.

No. 624, Drawing Pen, upper blade with spring, Ebony Handle,  
5 in.

No. 580, Steel-spring Bow Divider, Metal Handle, 3½ in.

No. 581, “ “ Pen, “ “ 3½ “

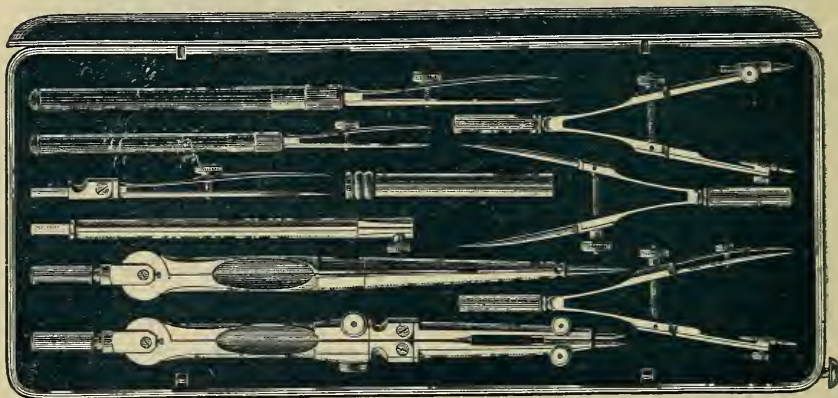
No. 582, “ “ Pencil, “ “ 3½ “

No. 717, Hair-spring Divider, 5 in., rounded Steel Points.

No. 724, Compass, 5½ in., with fixed Needle Point, Pen, upper  
blade with spring, Pencil Point and Lengthening  
Bar.

Box for Leads.

Each . . . . . \$21.50



No. 749.

749. Containing—

No. 623, Drawing Pen, upper blade with spring, Ebony Handle,  
4½ in.

No. 624, Drawing Pen, upper blade with spring, Ebony Handle,  
5 in.

No. 580, Steel-spring Bow Divider, Metal Handle, 3½ in.

No. 581, “ “ Pen, “ “ 3½ “

No. 582, “ “ Pencil, “ “ 3½ “

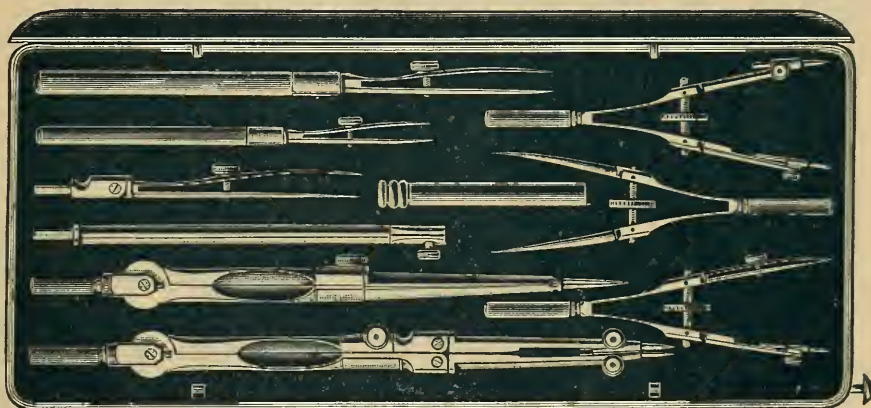
No. 715, Plain Divider, 5 in., rounded Steel Points.

No. 726, Compass, 5½ in., with fixed Needle Point, with Hair  
Spring, Pen, upper blade with spring, Pencil Point  
and Lengthening Bar.

Box for Leads.

Each . . . . . \$22.00

Each instrument stamped H. S. C. Co. and with trademark 



No. 752.

752. Containing—

No. 623A, Drawing Pen, upper blade with spring, Aluminum Handle, 4½ in.

No. 624A, Drawing Pen, upper blade with spring, Aluminum Handle, 5 in.

No. 588, Steel-spring Bow Divider, 3½ in.

No. 589, “ “ Pen, 3½ “

No. 590, “ “ Pencil, 3½ “

No. 717, Hair-spring Divider, 5 in., rounded Steel Points.


No. 724, Compass, 5½ in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar.

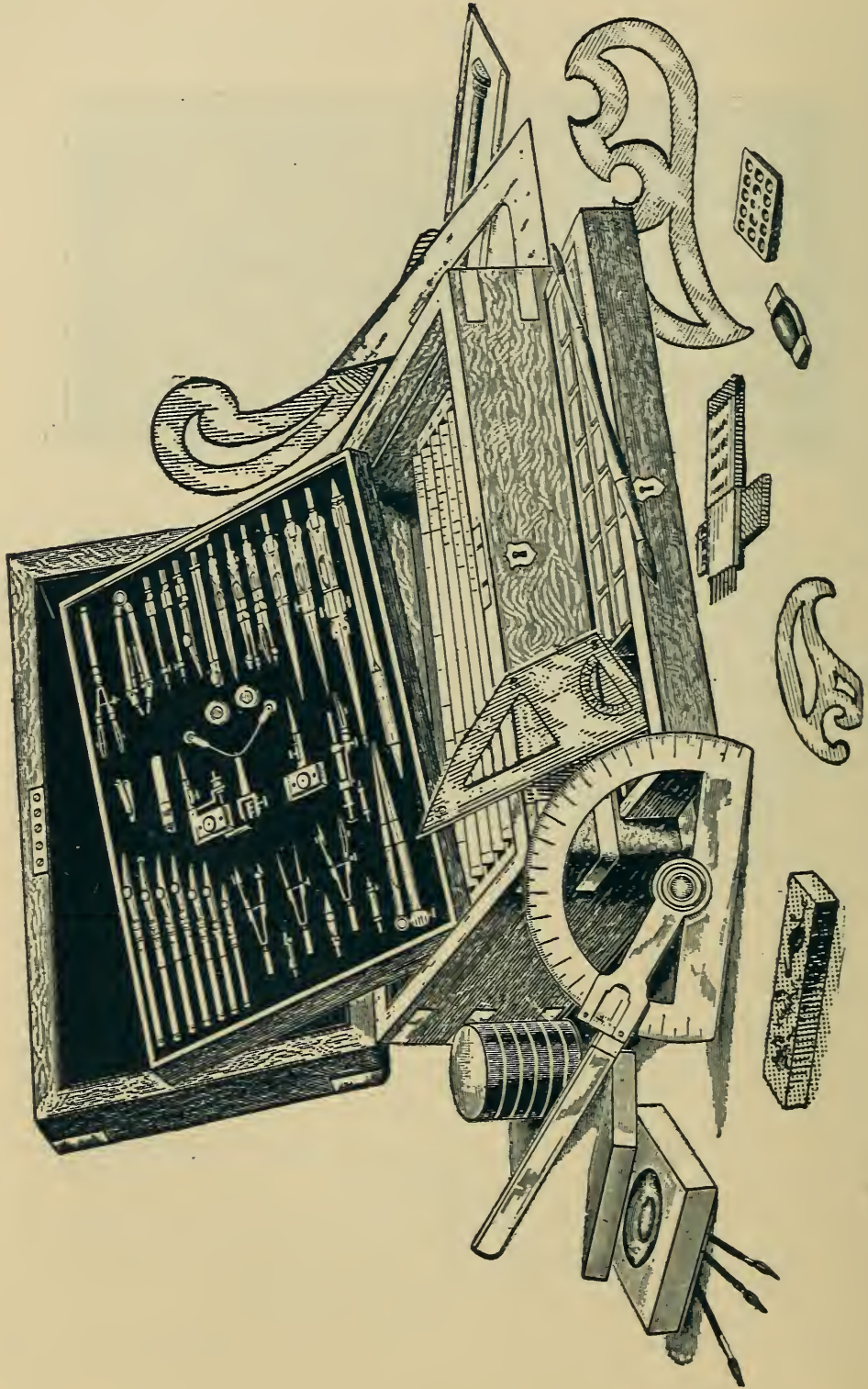
Box for Leads.

Each..... \$22.50


H. S. CROCKER COMPANY

SAN FRANCISCO  
AND  
SACRAMENTO


Each instrument stamped H. S. C. Co. and with trademark 



No. 753.

Each instrument stamped H. S. C. Co. and with trademark 

753. Containing a very complete outfit of the best tools, in fine polished case with German Silver Corners, Lock, Tray and Drawer, viz:
- No. 626, Ruling Pen, 4 in., with Joint and Ivory Handle.
  - No. 627, 2 Ruling Pens, 4  $\frac{3}{4}$  in., with Joint and Pin, Ivory Handle.
  - No. 628, 2 Ruling Pens, 5  $\frac{1}{2}$  in., with Joint and Pin, Ivory Handle.
  - No. 629, Ruling Pen, 6  $\frac{1}{2}$  in., with Joint and Pin, Ivory Handle.
  - No. 644, Railroad Pen, 5 in., Ivory Handle.
  - Nos. 580, 581, 582, Set of 3 Steel-spring Bow Instruments.
  - No. 554, Self-adjusting Spring Bow Pen with Pencil Point.
  - No. 651, Dotted Pen.
  - No. 708, Plain Divider, 4  $\frac{1}{2}$  in., Pivot Joint.
  - No. 711, " 6 " "
  - No. 530, Three-legged Divider, 6 in., with Adjustable Leg.
  - No. 714, Hair-spring " 6 " Pivot Joint.
  - No. 703, Compass, 3  $\frac{1}{2}$  in., with fixed Needle Point and Pencil Point, Pivot Joint.
  - No. 704, Compass, 3  $\frac{1}{2}$  in., with fixed Needle Point and Pen Point, Pivot Joint.
  - No. 731, Compass, 6 in., with Pencil, Pen and Needle Points and Lengthening Bar, Pivot Joint.
  - No. 529, Pillar Compass.
  - No. 610, Beam "
  - No. 611, " " Wheel Attachment.
  - No. 537, Proportional Divider, 8  $\frac{1}{2}$  in., with Rack-movement.
    - Adjusting Key. Box with Leads.
    - 2 Horn Centers, with German Silver Rim.
    - Set of 8 Boxwood Scales, 12 in., full divided  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1, 1  $\frac{1}{2}$ , 3 in. to the foot.
    - German Silver Rolling Parallel Rule, 12 in.
    - German Silver Vernier Protractor, 8 in.
    - 3 Transparent Polyangles, 6, 8 and 10 in.
    - 3 Transparent Ambro Curves, 6, 14 and 15 in.
    - 2 Dozen Thumb Tacks. Tack Lifter.
    - Cake Chinese Ink.
    - Whole Pan, each, W. N. Water Colors—8, 10, 11, 16, 18, 20, 29, 34, 44, 45.
    - Whole Pan, each, W. N. Water Colors— 52, 61.
      - " " " " —100.
      - " " " " —154.
    - 6 Camel's-hair Brushes, 1, 2, 3, 4, 5, 6.
    - Camel's-hair Brush, 12.
    - 2 Double Camel's-hair Brushes, 1, 3.
    - 6 Red Sable Brushes, 1, 3, 5, 7, 8, 10.
    - Slate Ink Slab. Nest of Saucers.
    - 2 Double Pointed Siberian Artists' Pencil.
    - 3 Boxes Siberian Leads. Cake Sponge Rubber.
    - 2 Cakes Artists' Rubber, large.
    - 2 Cakes Ink Eraser, large.
    - Ink and Pencil Eraser.
    - Pencil Pointer. Steel Eraser.
    - Dozen Finest Steel Pens, with Holder.
- Each ..... \$200.00

Each instrument stamped H. S. C. Co. and with trademark 

POCKET BOOK STYLE.



Closed.




Open.

No. 741.

737 P. B.	Containing same instruments as in set No. 737	.....	each	\$23.00
738 P. B.	“ “ “ “ “ “	738	.....	“ 24.00
739 P. B.	“ “ “ “ “ “	739	.....	“ 24.50

In ordering any of the above sets be careful to specify Pocket Book Style.



Each instrument stamped H. S. C. Co. and with trademark 

**POCKET BOOK STYLE.**



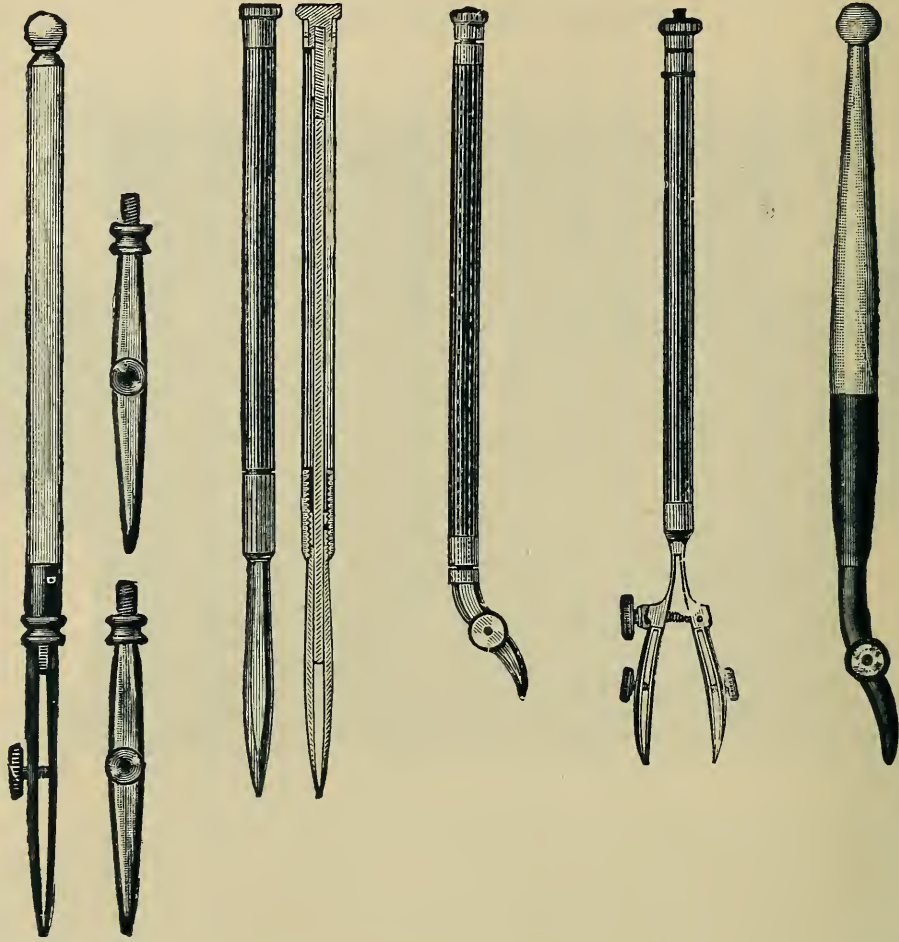
No. 742.

740 P. B.	Containing same instruments as in set No. 740.....	each	\$25.50
741 P. B.	“ “ “ “ “ 741.....	“	25.00
742 P. B.	“ “ “ “ “ 742.....	“	32.00
743 P. B.	“ “ “ “ “ 743.....	“	34.50
746 P. B.	“ “ “ “ “ 746.....	“	23.00
747 P. B.	“ “ “ “ “ 747.....	“	24.00
748 P. B.	“ “ “ “ “ 748.....	“	24.50
749 P. B.	“ “ “ “ “ 749.....	“	25.00
752 P. B.	“ “ “ “ “ 752.....	“	25.50

In ordering any of the above sets be careful to specify Pocket Book Style.

# IMPROVED DRAWING PENS.

Illustrations  $\frac{2}{3}$  size.



No. 754.

755.

756.

757.

758.

754. Hatching Pen, extra fine, with Pushing Screw, 3 Pens to one Handle . . . . . each \$2.50

755. Improved Drawing Pen,  $5\frac{1}{4}$  in., without Thumb-screw . . . . . " 1.25

This pen opens and closes by turning the set-screw at the upper end of the handle, making the screw through the blades unnecessary, and a displacement of the nibs sideways impossible. As there is no obstruction to the sight in working, this pen is preferable for fine work.

756. Improved Curve Pen,  $4\frac{3}{4}$  in. . . . . each \$1.25

This pen has a hollow handle in which a small rod turns. The blades being fastened to the end of the rod and being eccentric to it, turn easily and follow the smallest curve with precision. By means of a nut at the upper end of the rod, the pen can be clamped and may then be used as an ordinary drawing pen.

757. Improved Railroad Pen,  $5\frac{1}{4}$  in. . . . . each \$4.00

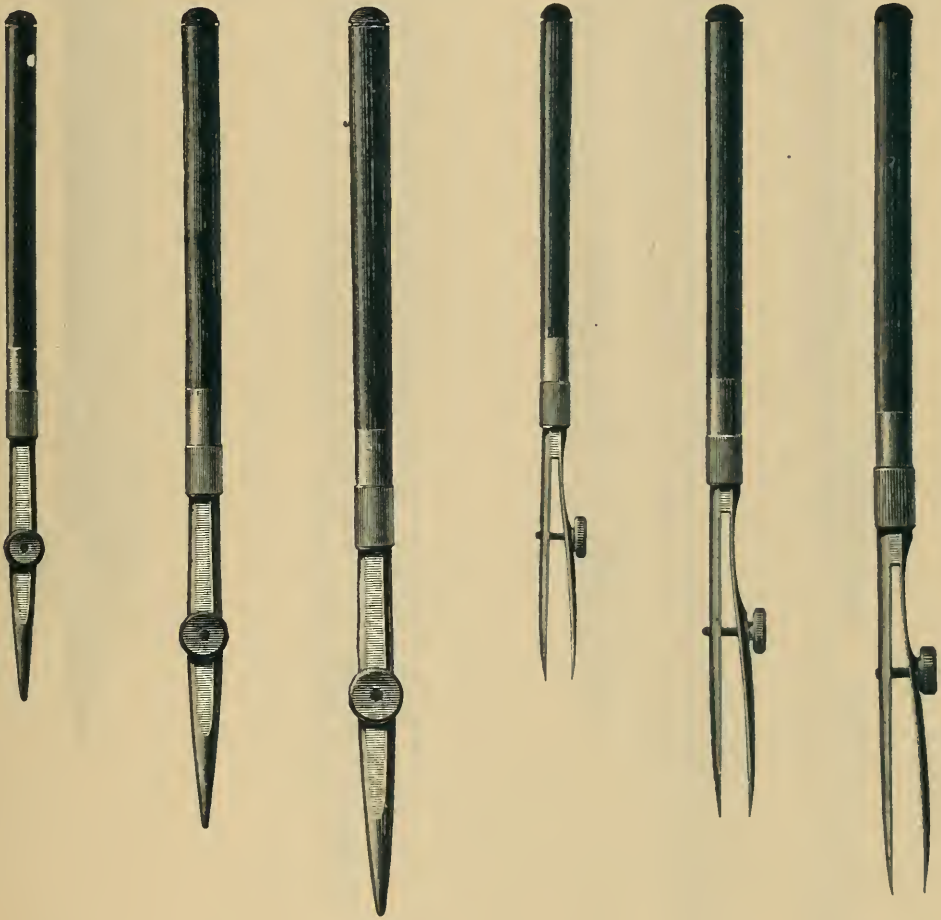
The construction of this pen is exactly like that of No. 756 with the exception of its having two pairs of blades. The heads of the screws in the blades are graduated to secure uniform adjustment for thickness of lines.

758. Curve Pen, Ivory Handle, 5 in. . . . . each \$1.75

SUPERIOR  
GERMAN INSTRUMENTS.

Superior German Silver and English Steel.

Illustrations  $\frac{2}{3}$  size.



No. 760.            761.            762.            764.            765.            766.

760.	Drawing Pen, Ebony Handle, 4 $\frac{1}{4}$ in. ....	each	\$.40
761.	“ “ “ 5 “ .....	“	.45
762.	“ “ “ 5 $\frac{1}{2}$ “ .....	“	.50
764.	“ “ “ with spring, 4 $\frac{1}{4}$ in. ....	“	.60
765.	“ “ “ “ 5 “ .....	“	.65
766.	“ “ “ “ 5 $\frac{1}{2}$ “ .....	“	.70

SUPERIOR GERMAN INSTRUMENTS.

Illustrations  $\frac{2}{3}$  size.



No. 768.

769.

770.

772.

768.	Drawing Pen, Aluminum Handle, Joint and Pin, 4½ in.....	each	\$ .75
769.	“ “ “ “ “ 5 “ .....	“	.80
770.	“ “ “ “ “ 6 “ .....	“	.85
772.	Drawing Pen, with Graduated Thumb-screw, for setting blades to any desired width by the numbers on the screw, when lines of certain even thickness are wanted.....	“	1.35

**SUPERIOR GERMAN INSTRUMENTS.**

Illustrations  $\frac{2}{3}$  size.



No. 773.



774.



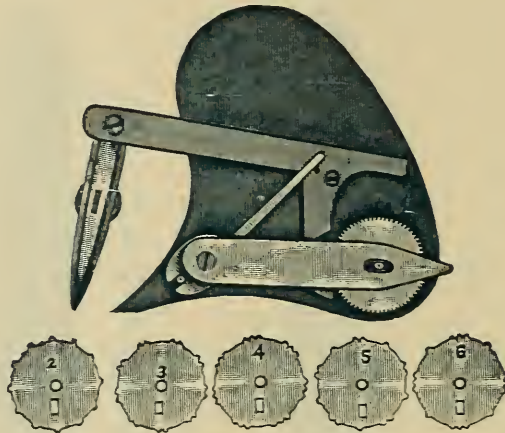
778.

**Swedish Style Drawing Pens for Broad Lines.**

773.	Drawing Pen, Ebony Handle, 5 in.....	each	\$ .85
774.	“ “ 6 “ .....	“	.95
775.	“ “ 7 “ .....	“	1.20
776.	“ upper blade with spring, Ebony Handle, 5 in..	“	1.00
777.	“ “ “ “ 6 “ ..	“	1.20
778.	“ “ “ “ 7 “ ..	“	1.35

SUPERIOR GERMAN INSTRUMENTS.

Illustrations  $\frac{2}{3}$  size.

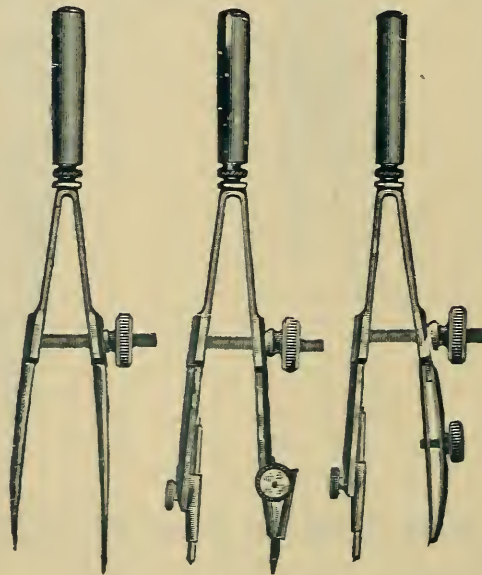


No. 780.

780. Dotting Instruments of German Silver, with 6 Wheels, in Case .....each \$1.50

The outer wheel is rolled on the edge of a T square or straight edge and turns the ratchet wheel, which causes the pen to move up and down. To change the pattern of the dotted lines, throw back the spring which holds the wheel on the axle and insert the proper ratchet wheel.

Illustrations  $\frac{2}{3}$  size.



No. 790.

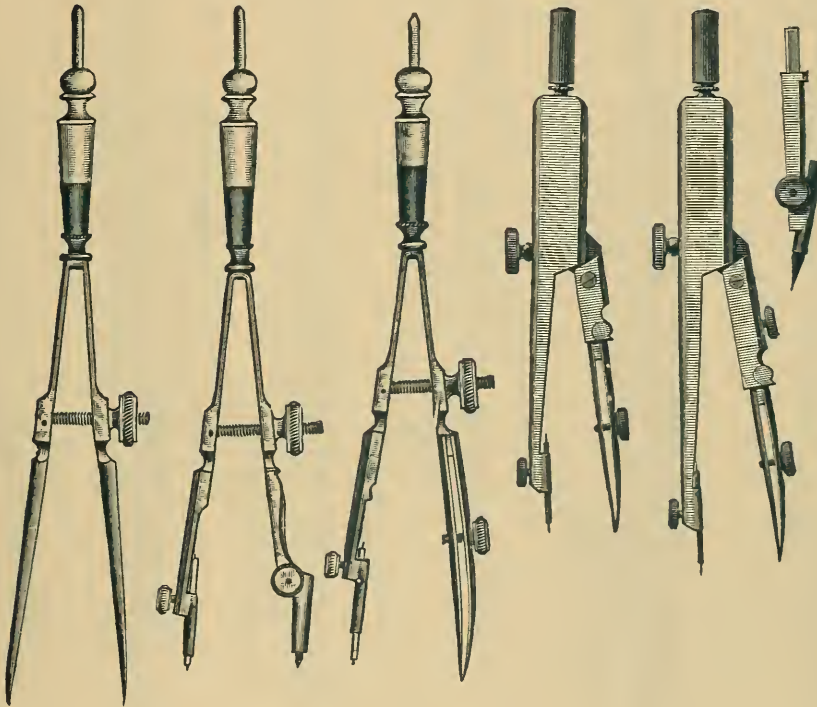
791.

792.

790.	Steel-spring Dividers, $3\frac{1}{2}$ in., with German Silver Handle....	each	\$1.10
791.	"    Bow Pencil, $3\frac{1}{2}$ in., with Needle Point, Silver Handle.....	"	1.30
792.	Steel-spring Bow Pen, $3\frac{1}{2}$ in., with Needle Point, Silver Handle	"	1.30
793.	"    Bows, set of 3, Nos. 790, 791, 792, in Morocco Case.	set	4.25

**SUPERIOR GERMAN INSTRUMENTS.**

Illustrations  $\frac{3}{4}$  size.



No. 795.

796.

797.

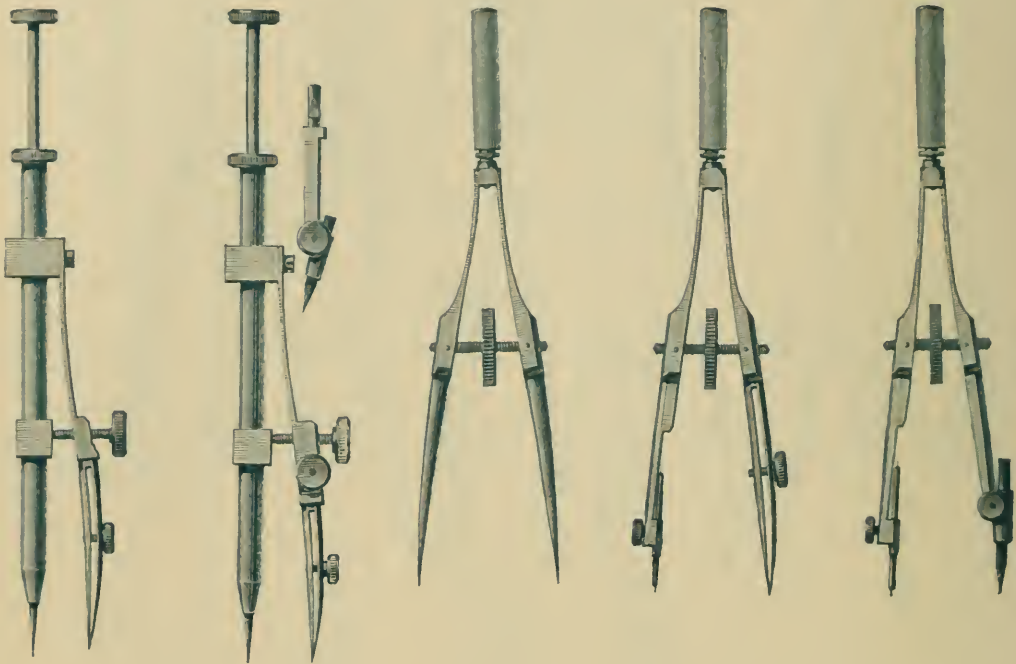
800.

801.

795.	Steel-spring Dividers, 4 in., White Handle . . . . .	each	\$1.10
796.	“ Bow Pencil, 4 in., with Needle Point, White Handle . . . . .	“	1.30
797.	Steel-spring Bow Pen, 4 in., with Needle Point White Handle “	“	1.30
798.	“ Bows, set of 3, Nos. 795, 796, 797, in Morocco Case set		4.25
800.	Spring Bow Pen, 3½ in., with Needle Point . . . . .	each	1.50
801.	“ “ “ 3½ “ “ “ and Pencil Point . . . . .	“	2.15

SUPERIOR GERMAN INSTRUMENTS.

Illustrations  $\frac{2}{3}$  size.



No. 803.                      804.                      806.                      807.                      808.

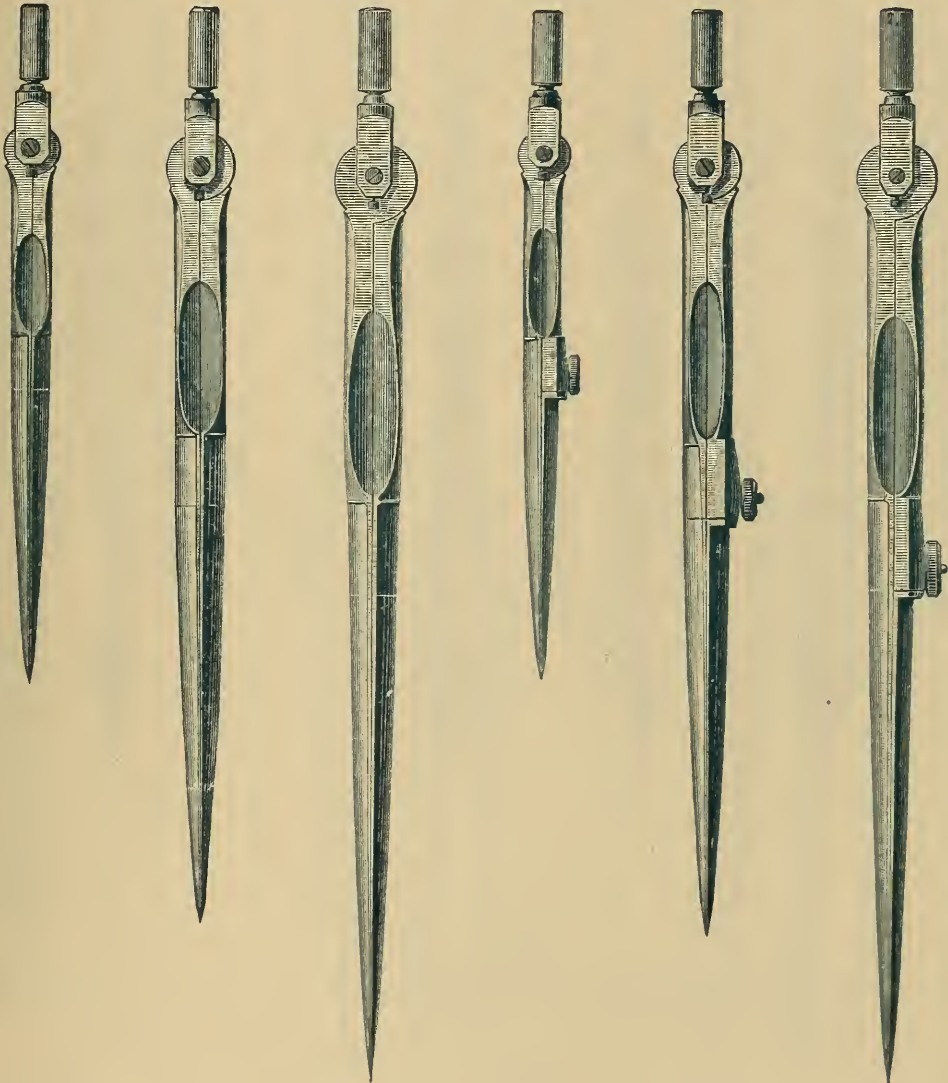
803.	Spring Bow Pen, Self-adjusting	.....	each	\$2.20
804.	“ “ “ “	with Pencil Point.....	“	3.00
806.	Steel-spring Divider, Metal Handle, 3½ in.....	.....	“	1.80
807.	“ Bow Pen, with Needle Point, Metal Handle, 3½ in.	.....	“	2.00
808.	“ “ Pencil, “ “ “ “	3½ in.	“	2.00
809.	Set of Bows, Nos. 806, 807, 808, in Case	.....	“	6.25

These bows have a screw, a right and left thread, which holds the points firmly in any position.



SUPERIOR GERMAN INSTRUMENTS.

Illustrations  $\frac{2}{3}$  size.



No. 814.            815.            816.            818.            819.            820.

814.	Plain Divider, Pivot Joint, 4 in.....	each	\$1.50
815.	“ “ “ “ 5 “ .....	“	1.75
816.	“ “ “ “ 6 “ .....	“	2.00
818.	Hair-spring Divider, Pivot Joint, 4 in. ....	“	2.25
819.	“ “ “ “ 5 “ .....	“	2.50
820.	“ “ “ “ 6 “ .....	“	3.00

SUPERIOR GERMAN INSTRUMENTS.

Illustrations  $\frac{2}{3}$  size.



No. 830.



831.



832.



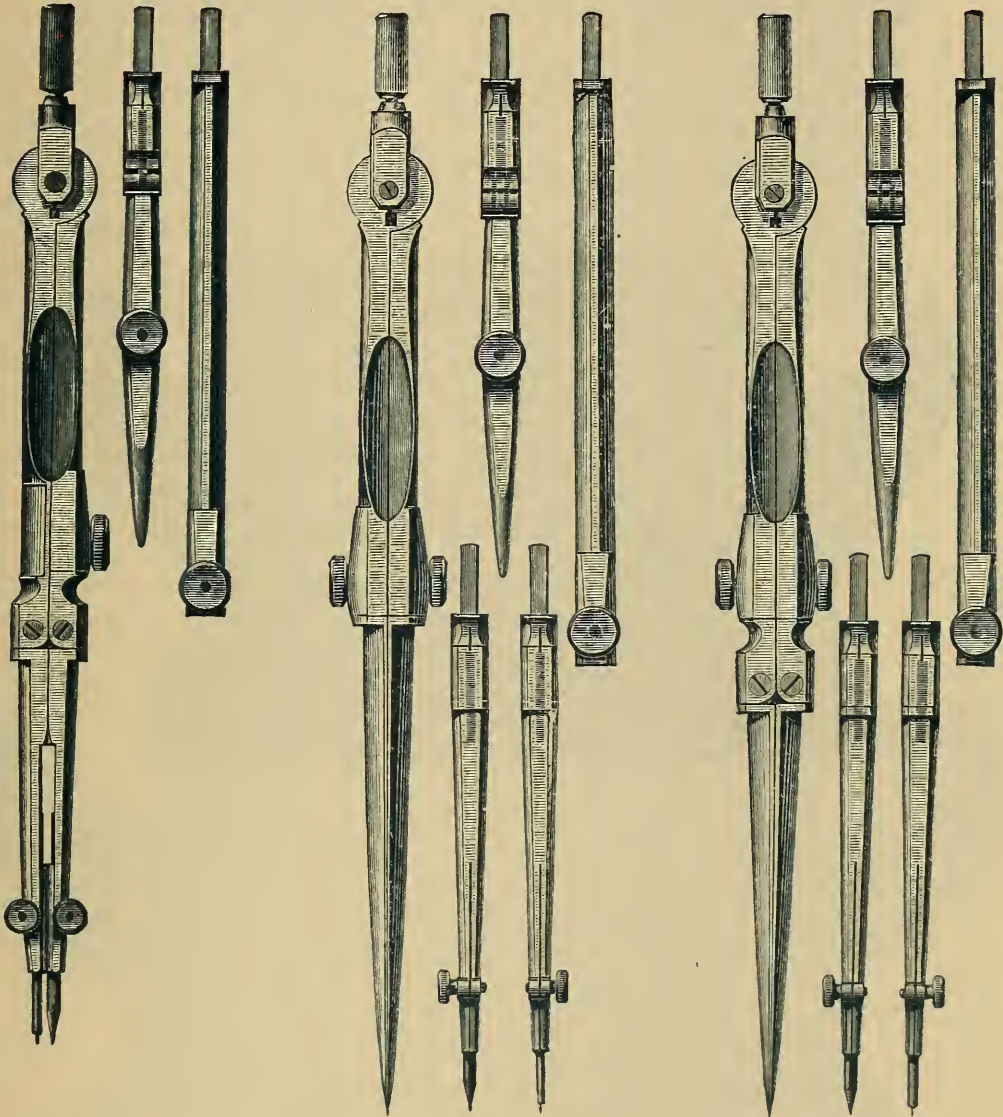
834.



830.	Compass, fixed Needle and Pencil Point, 4 in. ....	each	\$3.00
831.	“ “ “ “ Pen “ 4 “ ....	“	3.00
832.	“ “ “ “ Pencil and Pen Point, 4 in. ....	“	4.00
834.	“ with 2 Steel Points, Pen, Pencil and Needle Point, 4 in. ....	“	4.50

**SUPERIOR GERMAN INSTRUMENTS.**

Illustrations  $\frac{2}{3}$  size.



No. 836.

837.

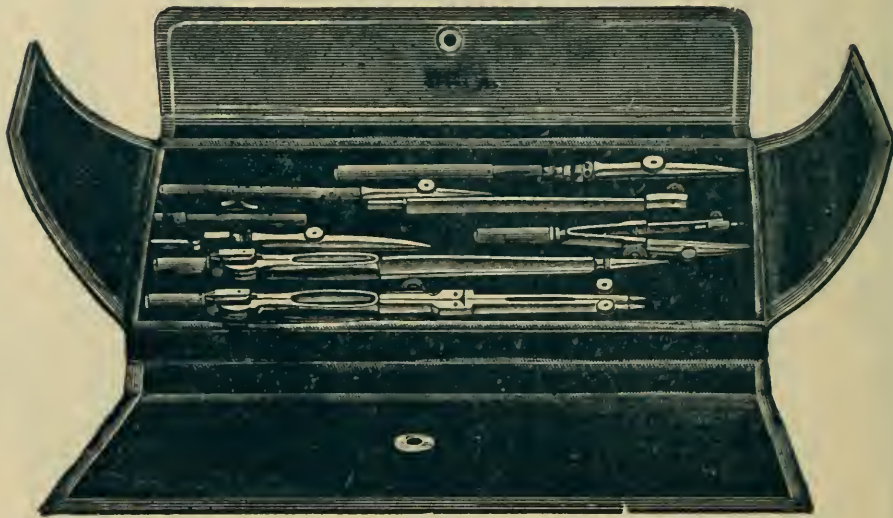
838.

- |      |   |             |
|------|---|-------------|
| 836. | Compasses, 6 in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar .....                        | each \$4.50 |
| 837. | Compasses, 6 in., with 2 Steel Points, Pen, Pencil, Needle Point and Lengthening Bar .....                    | " 5.25      |
| 838. | Compasses, 6 in., with 2 Steel Points, Joint in each Leg, Pen, Pencil, Needle Point and Lengthening Bar ..... | " 6.00      |

SUPERIOR  
GERMAN INSTRUMENTS.

IN FINE MOROCCO CASES, LINED WITH VELVET.

This cut shows Pocketbook Case.



No. 840.

840. Containing—

No. 764, Drawing Pen, Ebony Handle,  $4\frac{1}{4}$  in.

No. 766, “ “ “ “  $5\frac{1}{2}$  “

No. 792, Steel-spring Bow Pen, Metal Handle,  $3\frac{1}{2}$  in.

No. 816, Plain Divider, Pivot Joint, 6 in.

No. 836, Compass, 6 in., with fixed Needle Point, Pencil, Pen Point and Lengthening Bar.

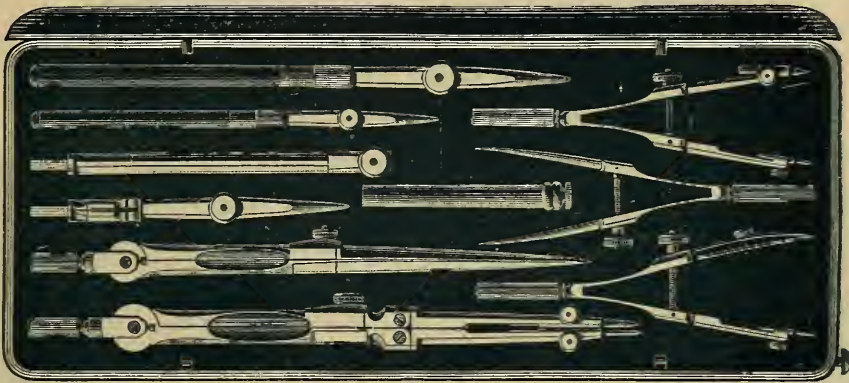
Box with Leads.

Each, in Pocket Case . . . . . \$7.00

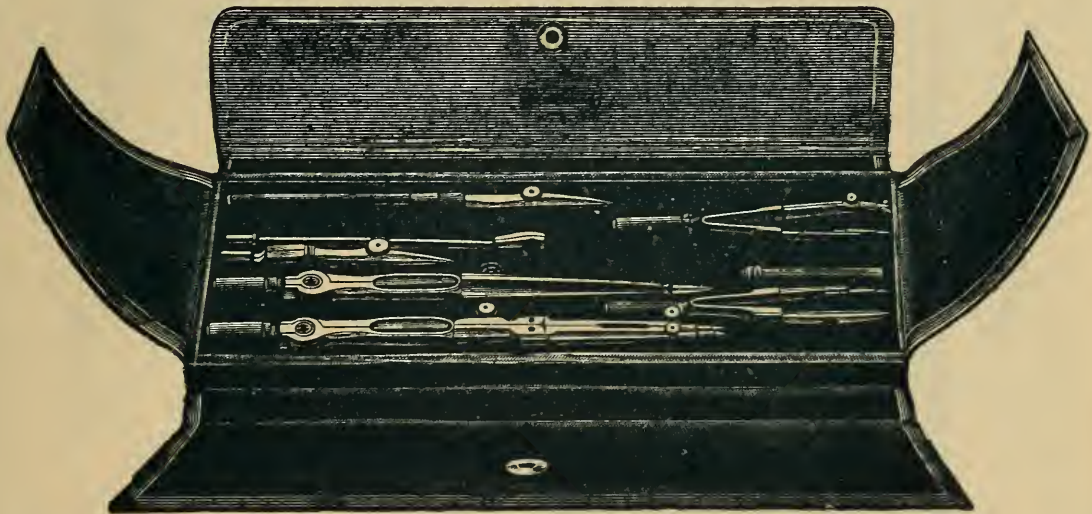
“ in Pocket Book Case . . . . . 8.00

**SUPERIOR GERMAN INSTRUMENTS.**

This cut shows Pocket Case.



841. Containing — No. 841.  
 No. 819, Hair-spring Divider, 5 in.  
 No. 836, Compass, 6 in., with fixed Needle Point, Pen, Pencil Point and Lengthening Bar.  
 Nos. 790, 791, 792, set Steel-spring Divider and Bows.  
 Nos. 760, 762, each Drawing Pen, Ebony Handle.  
 Fine German Silver Box with Leads.
- Each, in Pocket Case . . . . . \$10.50      Each, in Pocket Book Case.. \$11.50



842. Containing — No. 842.  
 No. 765, Drawing Pen, Ebony Handle, with Spring, 5 in.  
 No. 815, Plain Divider, Pivot Joint, 5 in.  
 No. 836, Compass, with fixed Needle Point, Pen, Pencil Point and Lengthening Bar, 6 in.  
 No. 792, Steel-spring Bow Pen, with Needle Point, Metal Handle, 3½ in.  
 No. 791, Steel-spring Bow Pencil, with Needle Point, Metal Handle, 3½ in.  
 Box with Leads.
- Each, in Pocket Case . . . . . \$7.50      Each, in Pocket Book Case... \$8.50

SUPERIOR GERMAN INSTRUMENTS.



No. 843.

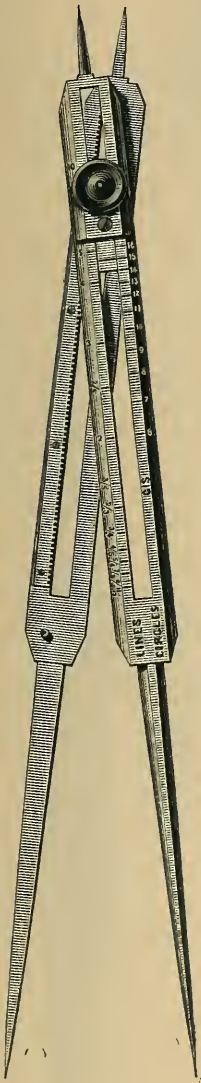
843. Containing—

- No. 768, Drawing Pen, with Aluminum Handle, Joint and Pin, 4½ in.
- No. 770, Drawing Pen, with Aluminum Handle, Joint and Pin, 6 in.
- No. 790, Steel-spring Dividers, with Metal Handle, 3½ in.
- No. 792, “ Bow Pen, with Needle Point, Metal Handle, 3½ in.
- No. 791, Steel-spring Pencil with Needle Point, Metal Handle, 3½ in.
- No. 820, Hair-spring Divider, Pivot Joint, 6 in.
- No. 837, Compass, with 2 Steel Points, Pen, Pencil, Needle Point and Lengthening Bar, 6 in.
- No. 834, Compass with 2 Steel Points, Pen, Pencil, and Needle Point, 4 in.

Box with Leads.

Each, in Pocket Case .....	\$13.50
“ in Pocket Book Case .....	14.50

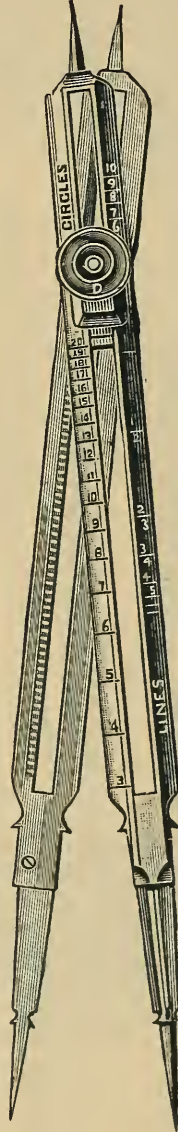
SUPERIOR  
GERMAN INSTRUMENTS.



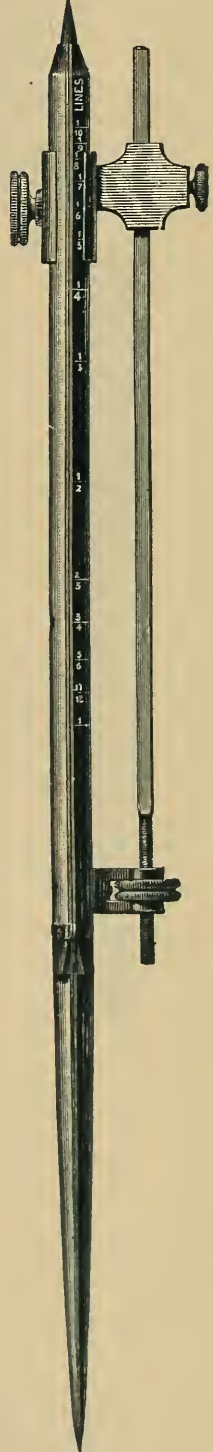
No. 845.



847.



848.



849.

SUPERIOR GERMAN INSTRUMENTS

- 845. Proportional Dividers, 7 in., with Rack Movement, for lines and circles. .... each \$8.00
- 846. Proportional Dividers, 7 1/4 in., for lines and circles, in case... " 5.50
- 847. " " 9 1/4 " " " " " " " 6.00
- 848. " " 7 1/4 " with Rack Movement, for lines, circles, solids and planes, in case ..... " 7.00
- 849. Proportional Dividers, 9 1/4 in., with Micrometer Adjustment, finely divided for lines and circles, in case ..... " 8.00

Illustrations 2/3 size.



No. 850.



851



852.



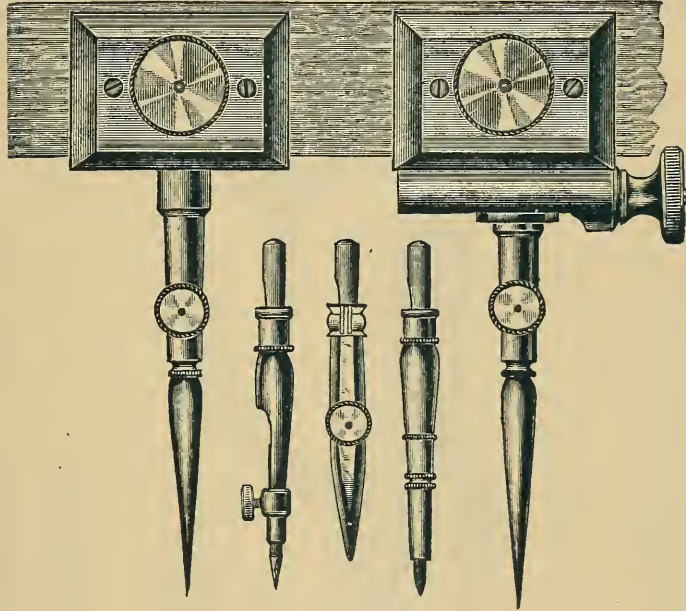
No. 853.

- 850. Pocket Dividers, 5 in., with Sheath. .... each \$2.00
- 851. Pocket Compasses, with Folding Points ... " 4.00
- 852. Three-legged Dividers, 5 in. .... " 2.00
- 853. Whole and Half Dividers, 6 1/2 in. .... " 2.75



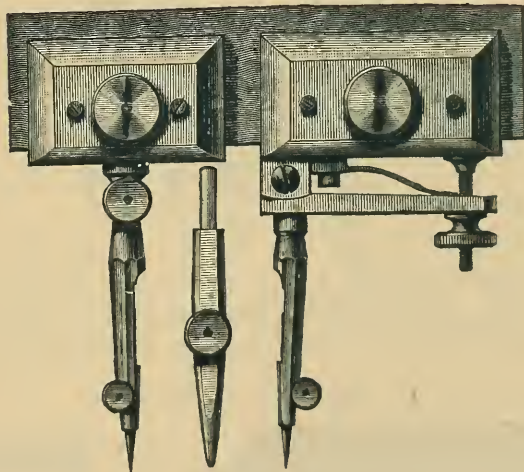
SUPERIOR GERMAN INSTRUMENTS

Illustrations  $\frac{3}{4}$  size.



No. 855.

855. Beam Compasses, to fit on a bar or straight edge, with 2 Steel Points, Pen, Pencil, and Needle Point, with Micrometer Adjustment, in case..... each \$6.00



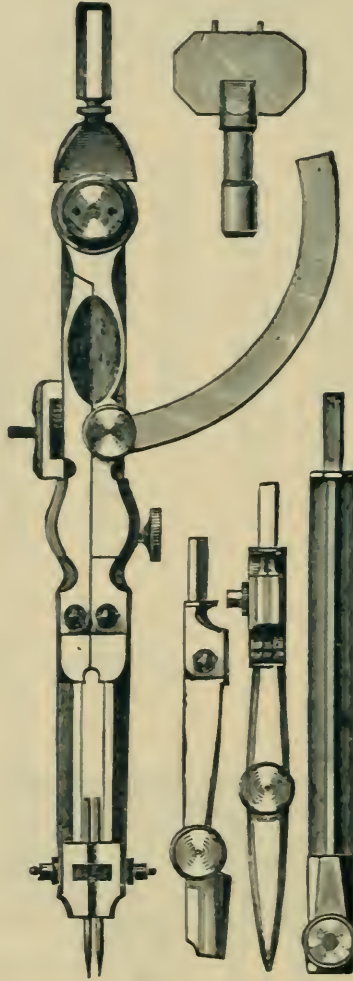
No. 856.

856. Minute Beam Compasses, to fit on any straight edge, with 2 Needle Points, exchangeable for lead, and Pen Point, with Micrometer Adjustment, in case..... each \$5.00

SUPERIOR GERMAN INSTRUMENTS.

LITHOGRAPHIC COMPASSES.

Illustration  $\frac{1}{2}$  size.



No. 860.

860. Compasses, German Silver, 8 in., very strong, with Arc, Set Screw, and Micrometer Adjustment, with Pen, Pencil Point, Lengthening Bar, and Wrench-key, in Morocco Case . . . . each \$10.00

Illustration full size.



No. 862.



863.

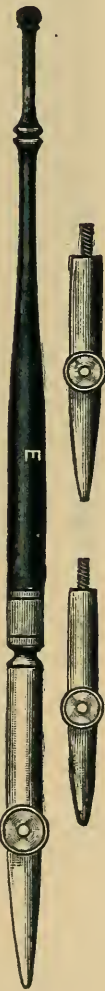
- |      |  |      |        |
|------|--|------|--------|
| 861. | Adjusting Key and Screw-driver . . . . .                       | each | \$ .50 |
| 862. | Patent Leads for Instruments, Box containing 4 Leads . . . . . | "    | .10    |
| 863. | German Silver Lead Box . . . . .                               | "    | .15    |

# FINE GERMAN INSTRUMENTS.

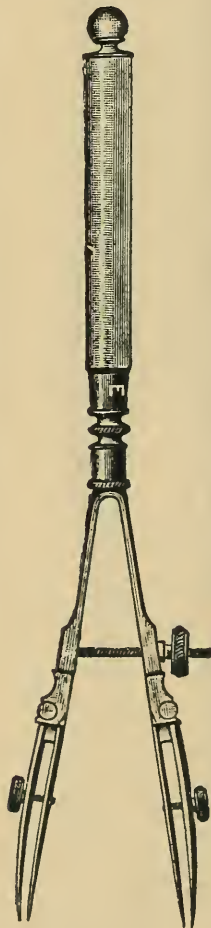
German Silver and Steel Points.

These instruments are known as our second grade, and are described on page 29.

Illustrations  $\frac{3}{4}$  size.



No. 865.



866.



867.

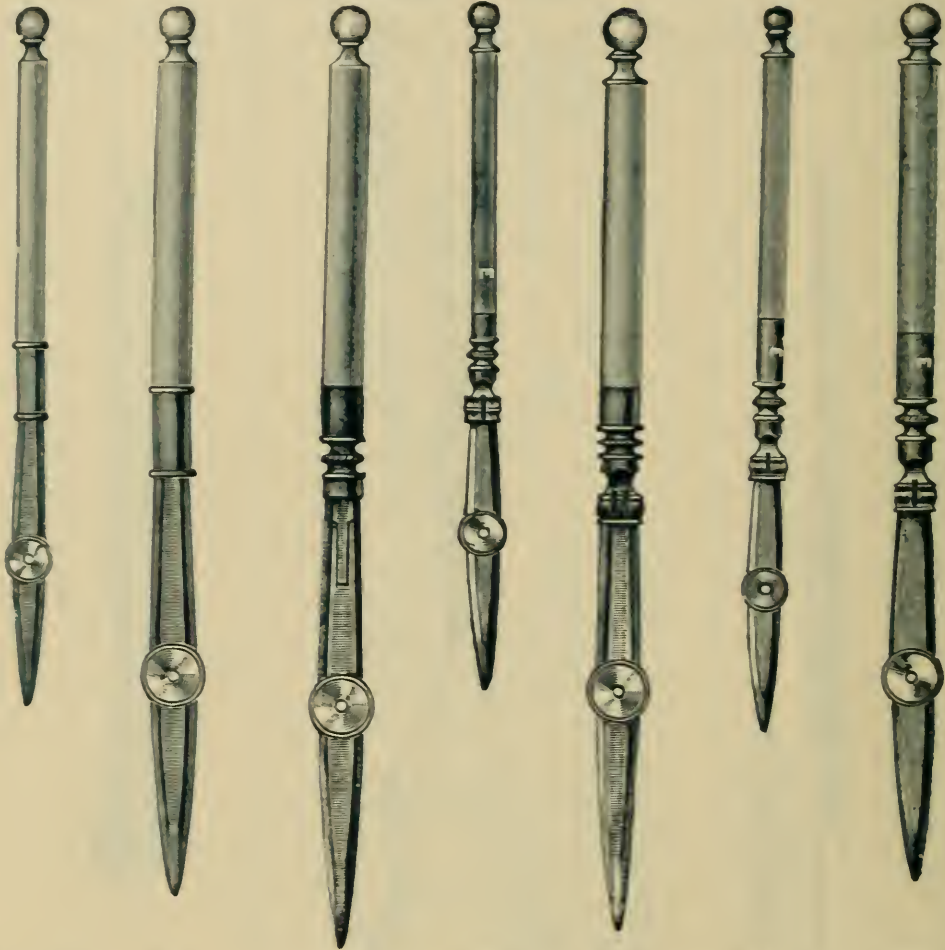
- |      |   |      |        |
|------|---|------|--------|
| 865. | Hatching Pen, 6 in., with Pushing Screw, 3 Pens to one Handle ..... | each | \$2.00 |
| 866. | Railroad Pen, 5½ in., Pens with Joint, Bone Handle .....            | "    | 3.00   |
| 867. | Dotting Pen, with one Wheel, 5 in., Bone Handle.....                | "    | 1.35   |

Drawing Pens carefully set and sharpened, each 20 to 25 cents.

FINE GERMAN INSTRUMENTS.

Fine German Silver, with Tempered Steel Points.

Illustrations  $\frac{2}{3}$  size.



No. 868.      869.      870.      871.      873.      874.      876.

868.	Drawing Pen, Bone Handle,	$4\frac{1}{2}$ in	.....	each	\$	.40
869.	"	$5\frac{1}{2}$ "	.....	"		.45
870.	"	$5\frac{1}{2}$ "	plain Joint	.....	"	.50
871.	"	$4\frac{1}{2}$ "	fine Joint	.....	"	.55
872.	"	5 "	"	.....	"	.60
873.	"	$5\frac{1}{2}$ "	"	.....	"	.65
874.	"	$4\frac{1}{2}$ "	"	and Pin	.....	.80
875.	"	$5\frac{1}{2}$ "	"	"	.....	.90
876.	"	6 "	"	"	.....	.95
877.	"	5 "	German Silver Blade, for	.....	"	.60
			red ink	.....	"	
878.	"	$5\frac{1}{2}$ "	German Silver Blade, with	.....	"	.65
			Joint	.....	"	
879.	"	$5\frac{1}{2}$ "	German Silver Blade, with	.....	"	.95
			Joint and Pin	.....	"	

FINE GERMAN INSTRUMENTS.

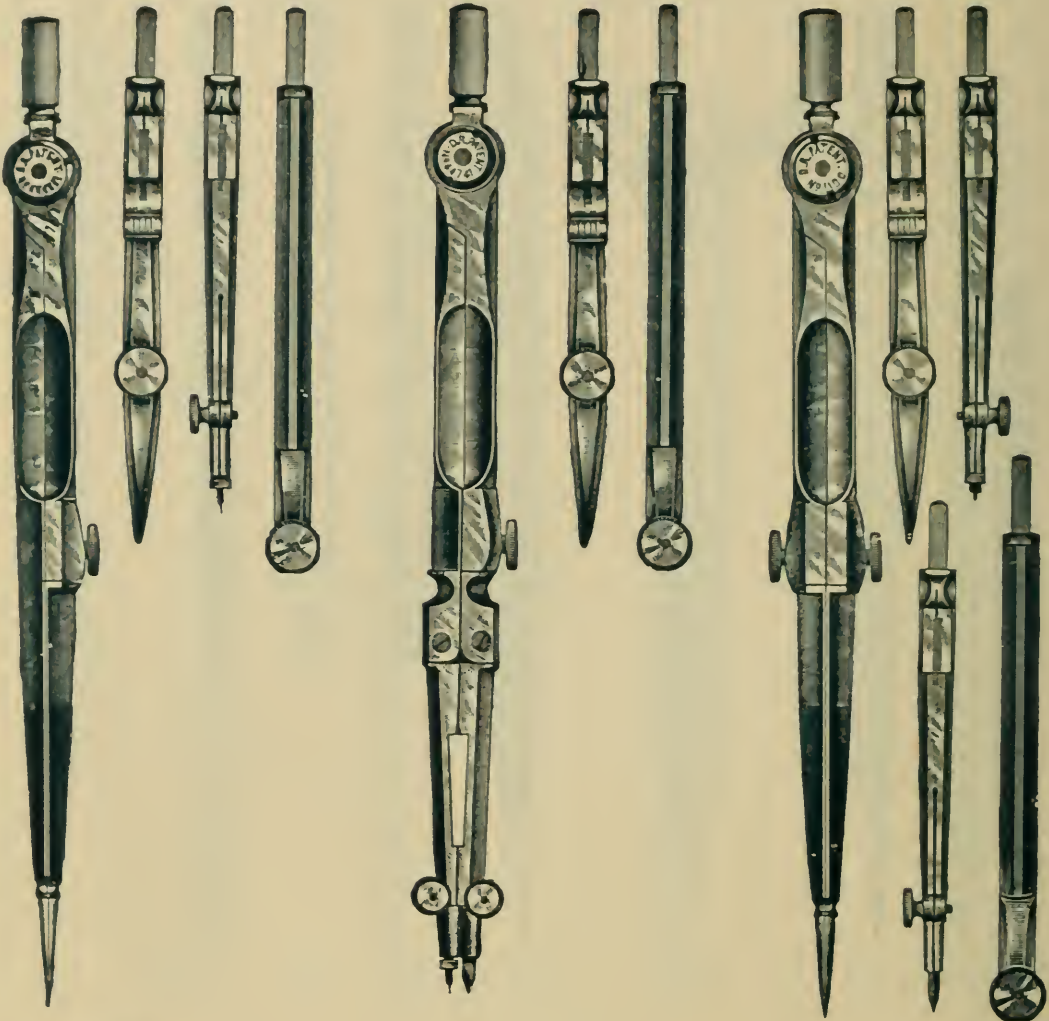


No. 885. 886. 888. 889. 891. 892. 893.

885.	Divider, with Handle,	3½ in.	.....	each	\$ .85
886.	Plain Dividers,	5 "	.....	"	.85
887.	"	6 "	.....	"	1.05
888.	Three-legged Divider,	5 "	.....	"	3.50
889.	Hair-spring	" 5 "	.....	"	2.00
890.	"	" 6 "	.....	"	2.50
891.	Compasses,	3½ "	fixed Needle and Pencil Points..	"	2.00
892.	"	3½ "	" " Pen " ..	"	2.00
893.	"	3½ "	with Pencil, Pen and Needle Points.....	"	2.70

Note Round Points and Handles on above Dividers and Compasses.

FINE GERMAN INSTRUMENTS.



No. 895.

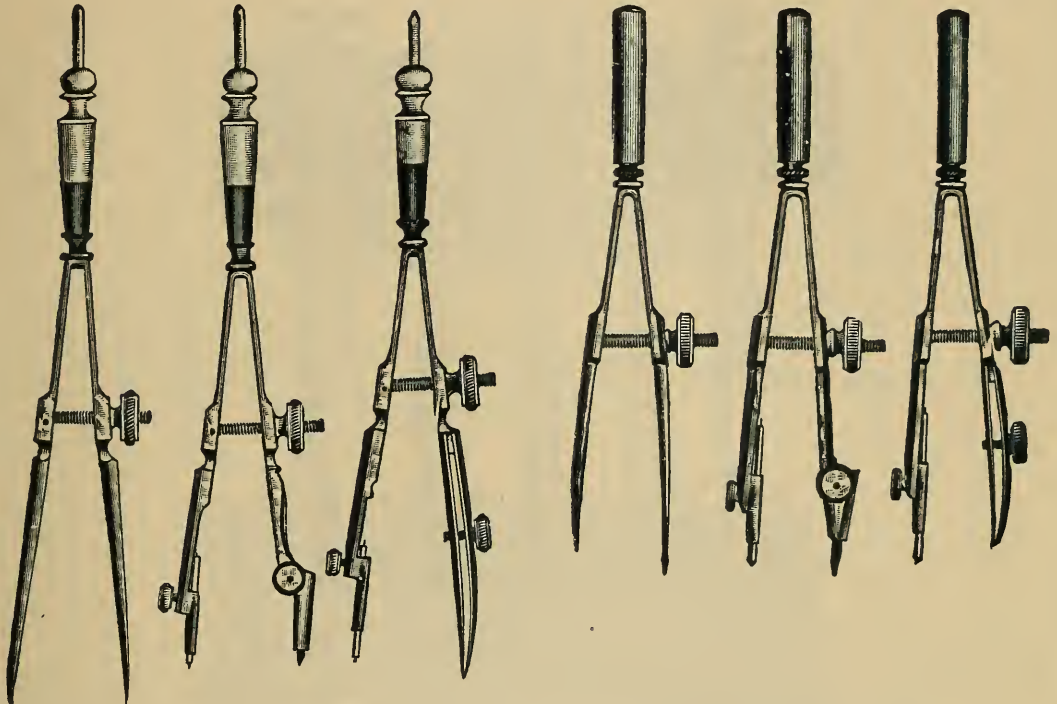
896.

897.

- |      |   |      |        |
|------|---|------|--------|
| 895. | Compasses, 5½ in., with Pencil and Pen Points and Lengthening Bar.....                        | each | \$2.20 |
| 896. | Compasses, 5½ in., with fixed Needle Point and Pencil and Pen Points and Lengthening Bar..... | "    | 2.40   |
| 897. | Compasses, 5½ in., with Pencil, Pen and Needle Points and Lengthening Bar.....                | "    | 3.75   |
| 898. | Compasses, 5½ in., the same as No. 897, but with Joint in each Leg.....                       | "    | 4.25   |

Note Round Points and Handles on above Compasses.

FINE GERMAN INSTRUMENTS.



No. 900.

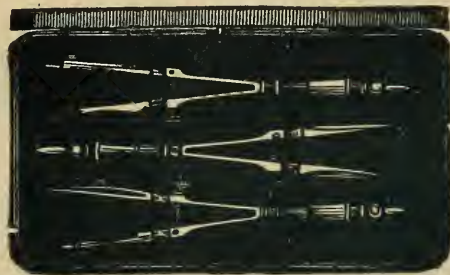
901.

902.

904.

905.

906.

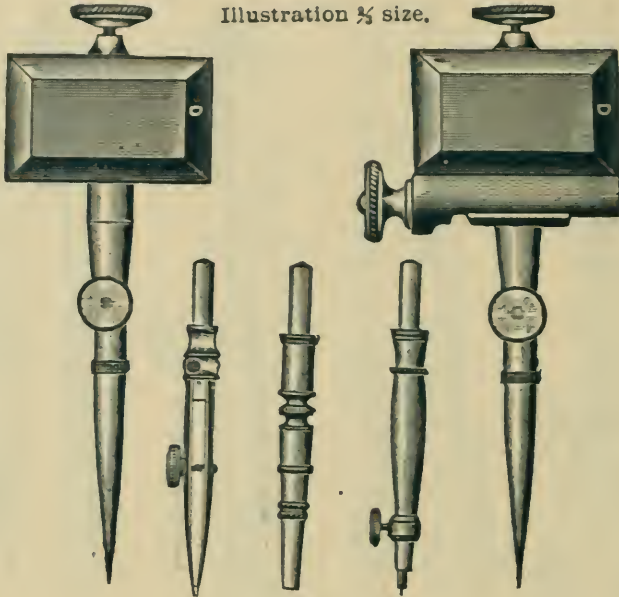


No. 903.

900.	Steel-spring Bow Divider, 4 in., White Handle.....	each	\$ .85
901.	“ “ Pencil, 4 “ “ .....	“	1.00
902.	“ “ Pen, 4 “ “ .....	“	1.00
903.	Set of Bows, Nos. 900, 901, 902, in Case.....	“	4.00
904.	Steel-spring Bow Divider, 3½ in., Metal Handle .....	“	.95
905.	“ “ Pencil, 3½ “ “ .....	“	1.10
906.	“ “ Pen, 3½ “ “ .....	“	1.10
907.	Set of Bows, Nos. 904, 905, 906, in Case.....	“	4.25

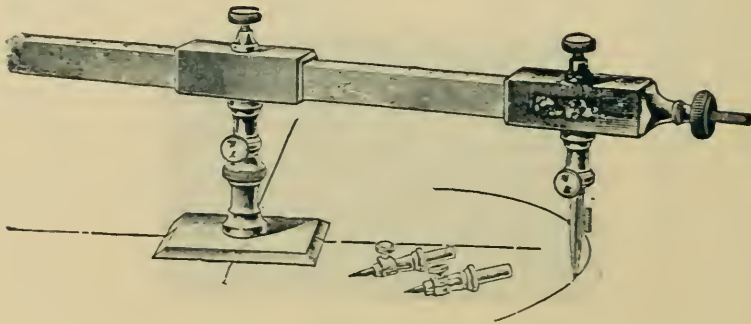
FINE GERMAN INSTRUMENTS.

Illustration  $\frac{2}{3}$  size.



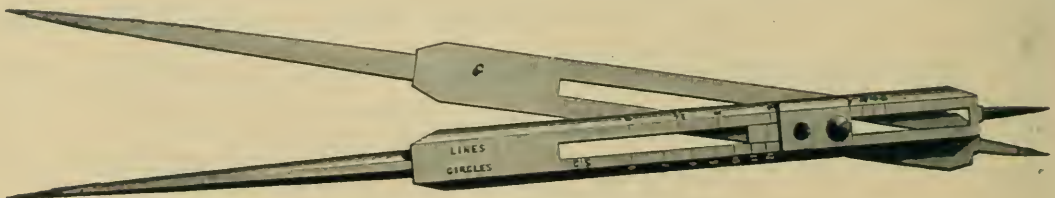
No. 910.

910. Beam Compasses, with 2 Steel Points, Pencil, Pen and Needle Points, in Morocco Case..... each \$7.75



No. 911.

911. Beam Compass, with Pen, Pencil, Needle Point and Wooden Bar, 36 in. long.....each \$6.00

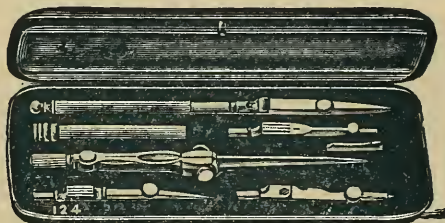


No. 912.

912. Proportional Divider,  $7\frac{1}{4}$  in., for Lines and Circles, in Case... each \$6.50

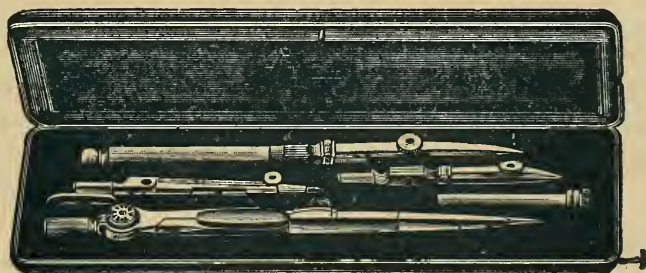


**FINE GERMAN INSTRUMENTS.  
IN CASES.**



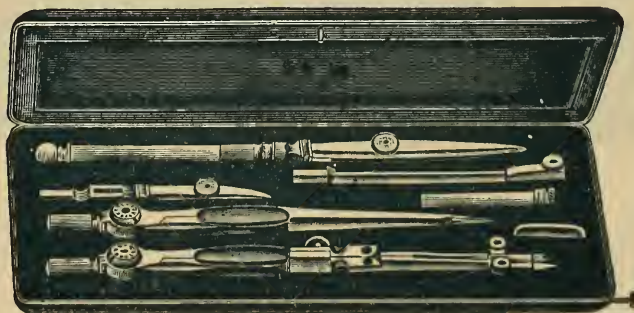
No. 915.

915. Containing—  
 No. 871, Ruling Pen,  $4\frac{1}{2}$  in., with Joint.  
 No. 893, Compasses,  $3\frac{1}{2}$  in., with Pencil, Pen and Needle Points.  
 Box with Leads and Keys.  
 Each ..... \$4.25



No. 916.

916. Containing—  
 No. 873, Ruling Pen,  $5\frac{1}{2}$  in., with Joint.  
 No. 895, Compasses,  $5\frac{1}{2}$  in., with Pencil, Pen Points and  
 Lengthening Bar.  
 Box with Leads and Key.  
 Each ..... \$3.00



No. 918.

918. Containing—  
 No. 873, Ruling Pen,  $5\frac{1}{2}$  in., with Joint.  
 No. 886, Plain Divider, 5 in.  
 No. 896, Compasses,  $5\frac{1}{2}$  in., with fixed Needle, and Pencil and  
 Pen Points and Lengthening Bar.  
 Box with Leads and Key.  
 Each ..... \$4.50

FINE GERMAN INSTRUMENTS.



No. 920.

920. Containing —

No. 873, Ruling Pen, 5½ in., with Joint.

No. 886, Plain Divider, 5 in.

No. 895, Compasses, 5½ in., with Pencil and Pen Points and Lengthening Bar.

Box with Leads and Key.

Each..... \$4.00



No. 922.

922. Containing —

No. 875, Ruling Pen, 5½ in., with Joint and Pin.

No. 906, Steel-spring Bow Pen, 3½ in., Metal Handle.

No. 886, Plain Divider, 5 in.

No. 896, Compasses, 5½ in., with fixed Needle Point and Pencil, and Pen Points and Lengthening Bar.

Box with Leads and Key.

Each..... \$5.50

FINE GERMAN INSTRUMENTS.



No. 924.

924. Containing—

- No. 870, Drawing Pen, 5½ in., plain Joint.
  - No. 889, Hair-spring Divider, 5 in.
  - No. 905, Steel-spring Bow Pencil, 3½ in., Metal Handle.
  - No. 906, “ “ Pen, 3½ “ “
  - No. 896, Compasses, 5½ in., with fixed Needle Point and Pencil,  
Pen Points and Lengthening Bar.
- Box with Leads.

Each..... \$7.50



No. 926.

926. Containing—

- No. 871, Ruling Pen, 4½ in., with Joint.
  - No. 875, “ 5½ “ “ and Pin.
  - No. 904, Steel-spring Bow Divider, 3½ in., Metal Handle.
  - No. 905, “ “ Pencil, 3½ “ “
  - No. 906, “ “ Pen, 3½ “ “
  - No. 889, Hair-spring Divider, 5 in.
  - No. 896, Compasses, 5½ in., with fixed Needle Point and Pencil  
and Pen Points and Lengthening Bar.
- Box with Leads and Key.

Each..... \$9.50

FINE GERMAN INSTRUMENTS.



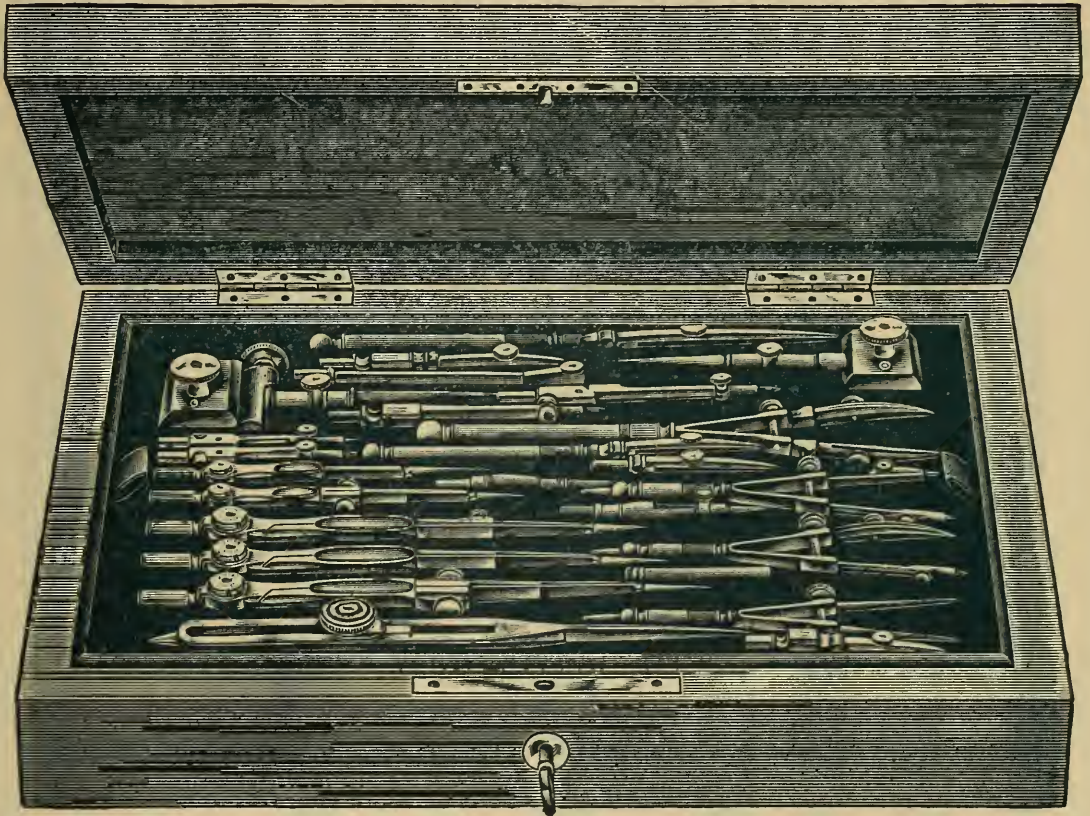
No. 928.

928. Containing—

- No. 871, Ruling Pen, 4½ in., with Joint.
- No. 875, “ 5½ “ “ and Pin.
- No. 904, Steel-spring Bow Divider, 3½ in., Metal Handle.
- No. 905, “ “ Pencil, 3½ “ “
- No. 906, “ “ Pen, 3½ “ “
- No. 889, Hair-spring Divider, 5 in.
- No. 893, Compasses, 3½ in., with Pencil, Pen, and Needle Points.
- No. 897, “ 5½ “ “ “ “ “  
and Lengthening Bar.
- Box with Leads and Key.

Each .....\$14.00

FINE GERMAN INSTRUMENTS.



No. 933.

933. In fine Polished Black Walnut Case, with Lock and Tray.

Containing—

- No. 871, Ruling Pen,  $4\frac{1}{2}$  in., with Joint.
- No. 875, "  $5\frac{1}{2}$  " " and Pin.
- No. 866, Railroad Pen,  $5\frac{1}{4}$  in.
- No. 900, Steel Spring Bow Divider, 4 in.
- No. 901, " " Pencil, 4 "
- No. 902, " " Pen, 4 "
- No. 885, Plain Divider,  $3\frac{1}{2}$  inch, with handle.
- No. 886, " 5 " "
- No. 889, Hair-spring Divider, 5 in.
- No. 892, Compasses,  $3\frac{1}{2}$  in., with Pencil, Pen and Needle Points.
- No. 897, Compasses,  $5\frac{1}{2}$  in., with Pencil, Pen and Needle Points, and Lengthening Bar.
- No. 910, Beam Compass.
- No. 912, Proportional Divider,  $7\frac{1}{4}$  in.
- Box with Leads and Key.

Each . . . . . \$36.00

# NICKEL-PLATED INSTRUMENTS.

These low-priced instruments are a great improvement over the French brass instruments of the same kind, and are very good for beginners.



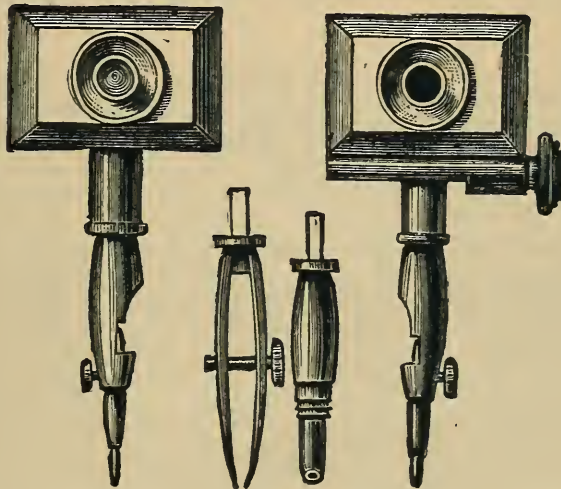
No.1000. 1001. 1004. 1006. 1008. 1010.

1000.	Ruling Pen, Ebony Handle, 5 in . . . . .	each	\$ .15
1001.	Ruling Pen, White Bone Handle and Pin, 5½ in . . . . .	"	.45
1003.	Dividers, 4½ in., Nickel Plated . . . . .	"	.30
1004.	" 5½ " " . . . . .	"	.35
1006.	Compasses, 5½ in., with Pencil Point, Nickel Plated . . . . .	"	.55
1008.	" 5½ " " and Pen Points, Nickel Plated . . . . .	"	.90
1010.	Compasses, 5½ in., with Pencil and Pen Points, and Lengthening Bar, Nickel Plated . . . . .	"	1.05

## PLAIN BRASS DIVIDERS.

1011-1.	Brass Divider 4½ in., . . . . .	per dozen	\$3.00
1011-2.	" " 5½ " . . . . .	"	3.50
1011-3.	" " 6½ " . . . . .	"	4.00

FRENCH INSTRUMENTS.



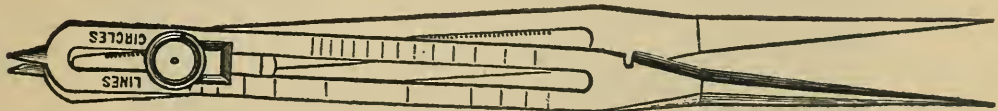
No. 1012-1013.

- 1012. Brass Beam Compass, with Pencil and Pen Points, in case..each \$6.25
- 1013. German Silver Beam Compass, with Pencil and Pen Points,  
in Case..... " 6.75



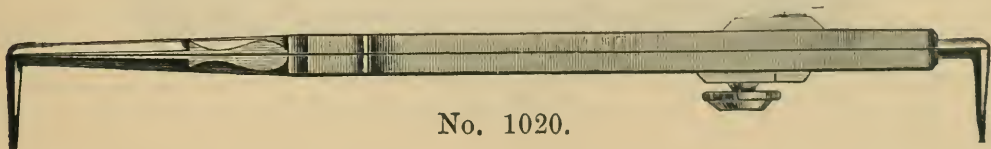
No. 1015.

- 1015. Brass Proportional Divider, 6½ in., in Case .....each \$2.50
- 1016. German Silver Proportional Divider, 6½ in., in Case ..... " 4.00



No. 1018.

- 1018. German Silver Proportional Divider, 7 in., with Rack-move-  
ment, Graduated for lines and Circles, in Case.....each \$9.50



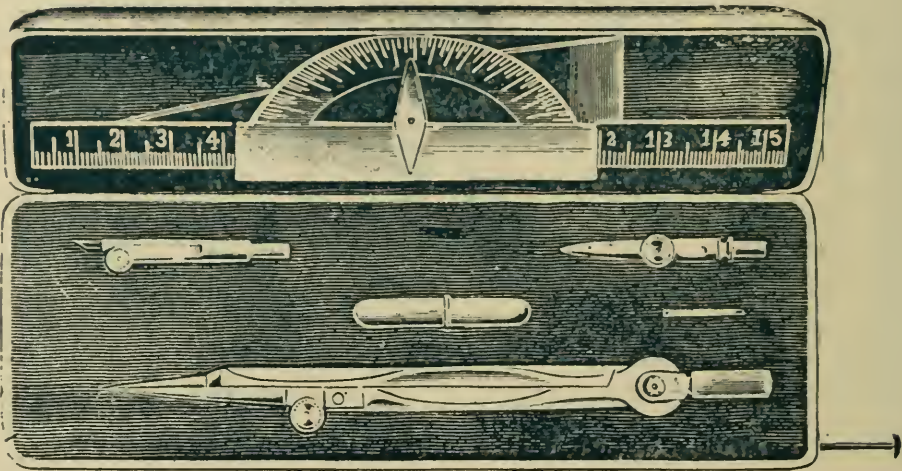
No. 1020.

- 1020. German Silver Proportional Divider, 7 in., with Rectangular  
Bent Points for Lines and Circles, in Case .....each \$7.25

# NICKEL-PLATED INSTRUMENTS.

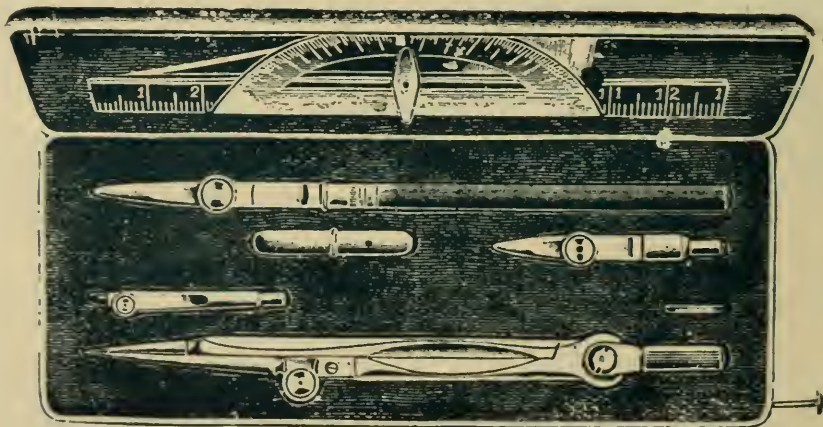
IN CASES.

FOR ELEMENTARY SCHOOL GRADES.



No. 1022.

1022. Pocket Case, as above ..... each \$ .65

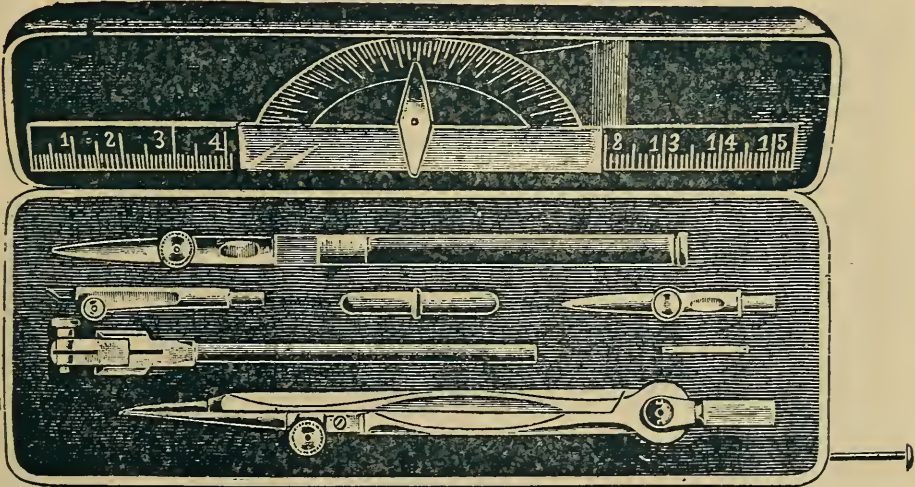


No. 1024.

1024. Pocket Case, as above ..... each \$ .80

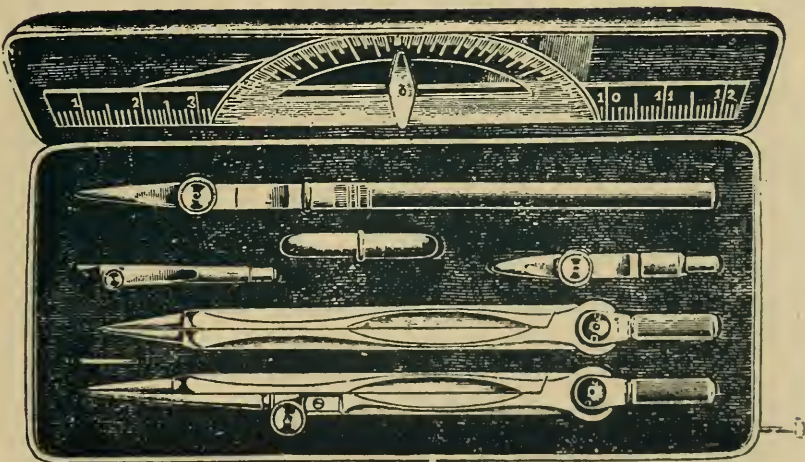


NICKEL-PLATED INSTRUMENTS.



No. 1026

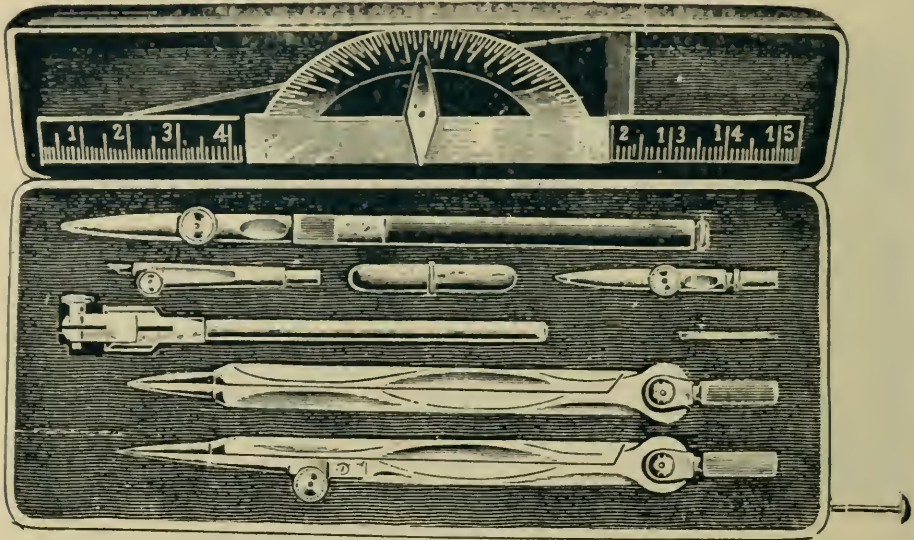
1026. Pocket Case, as above . . . . . each \$1.00



No. 1028.

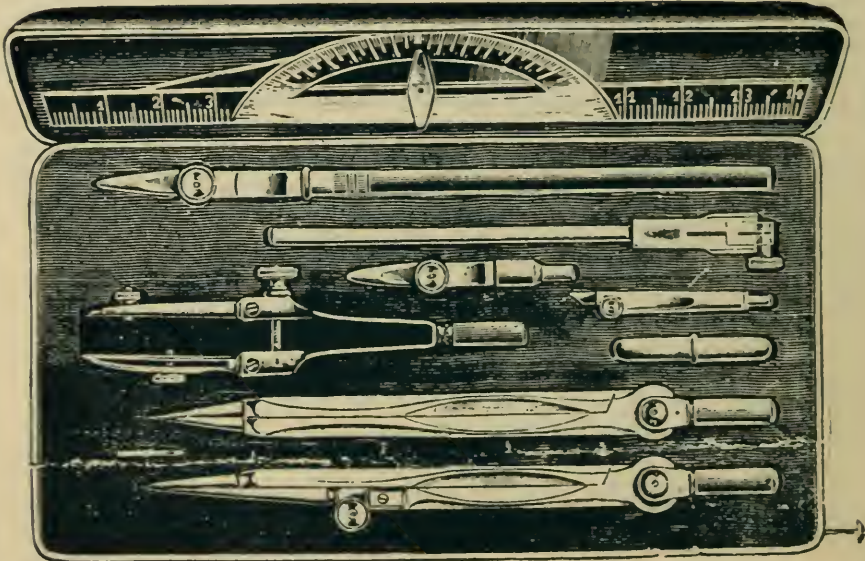
1028. Pocket Case, as above . . . . . each \$1.20

NICKEL-PLATED INSTRUMENTS.



No. 1029.

1029. Pocket Case, as above ..... each \$1.35

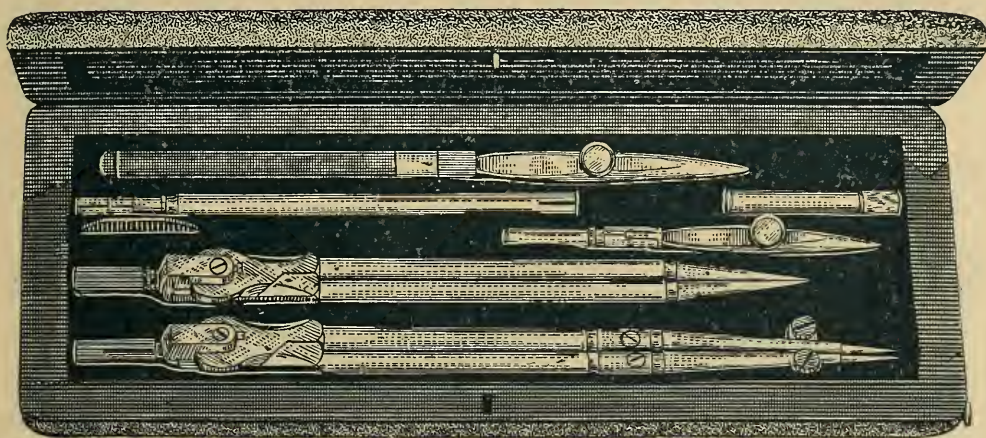


No. 1030.

1030. Pocket Case, as above ..... each \$1.75

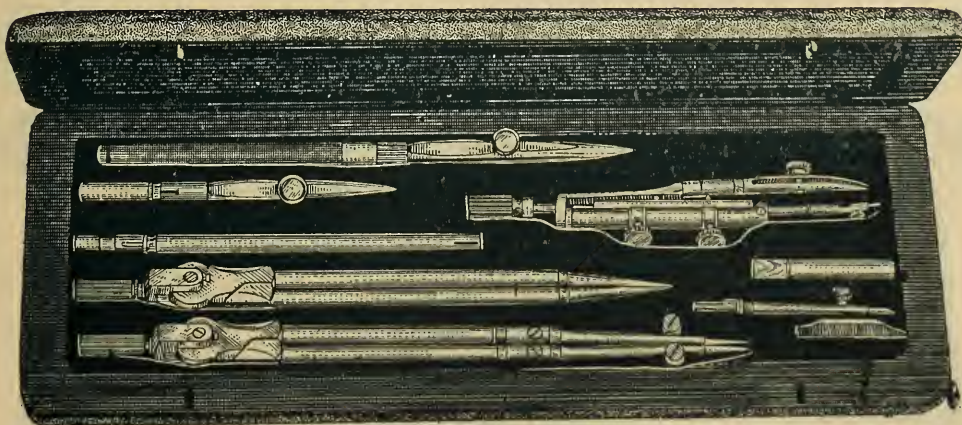
SUPERIOR  
GERMAN INSTRUMENTS.

IN FINE MOROCCO CASES, LINED WITH VELVET,  
WITH SLIDING ROD FASTENING.



1032.

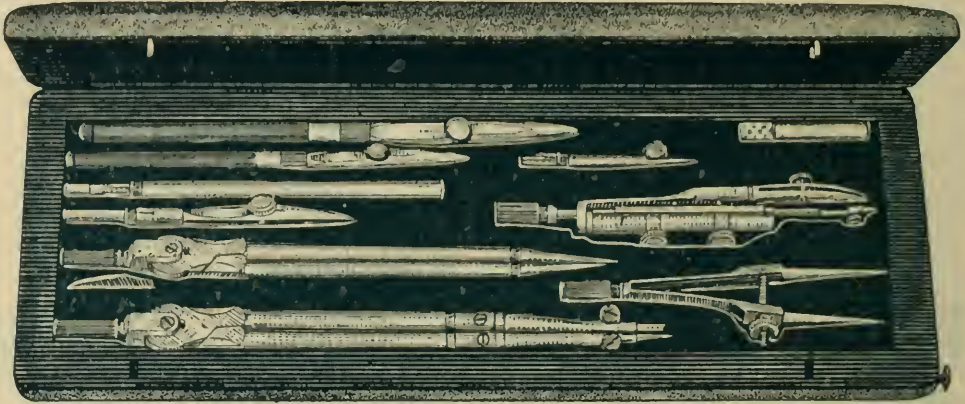
1032. Pocket Case, as above ..... each \$ 5.00



1033.

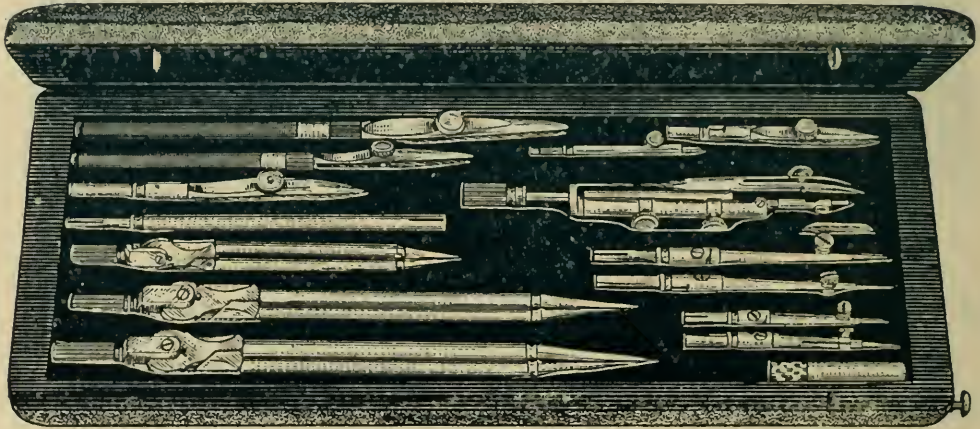
1033. Pocket Case, as above ..... each \$ 7.00

SUPERIOR GERMAN INSTRUMENTS.



1034.

1034. Pocket Case, as above ..... each \$8.00



1035.

1035. Pocket Case, as above ..... each \$11.00



1036.

1036. Pocket Case, as above ..... each \$9.00

**SUPERIOR GERMAN INSTRUMENTS.**



1037.

1037. Pocket Case, as above ..... each \$9.50

**SEPARATE PARTS FOR INSTRUMENTS.**

To accommodate our customers we keep in stock separate parts for our Mathematical Instruments, such as Pen Points, Pencil Points, Needle Points, Screws, Shouldered Needles, Pen Handles, etc. Since all parts must be fitted to the instruments, it is necessary to send us the instruments for such fitting.

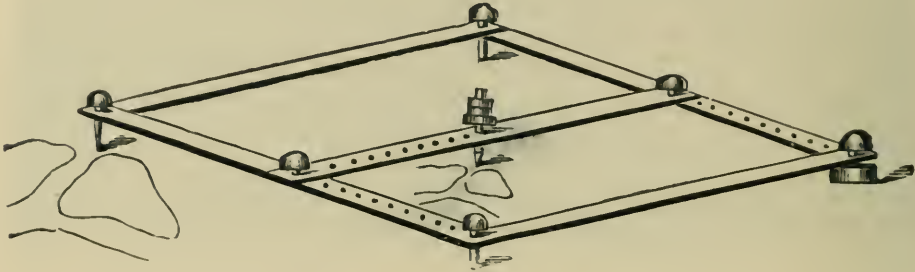
**PARTS FOR SWISS INSTRUMENTS.**

Pen Points, Pencil Points, Needle Points, for 3½ in. Compasses.....	each	\$1.25
“ “ “ “ 4½, 5½, 6 in. “ .....	“	1.60
“ “ “ “ 6½, 7 in. “ .....	“	1.75
“ “ “ “ Beam “ .....	“	1.00
Lengthening Bars for 4½, 5½, 6 in. Compasses.....	“	1.60
“ “ “ 6½, 7 in. “ .....	“	1.75
Screws and Nuts.....	“	.20
Shouldered Needles .....	“	.15
Ivory Handles for Drawing Pens, 4 in. ....	“	.45
“ “ “ 4¾ “ .....	“	.45
“ “ “ 5½ “ .....	“	.50
“ “ “ 6½ “ .....	“	.50

**PARTS FOR GERMAN INSTRUMENTS.**

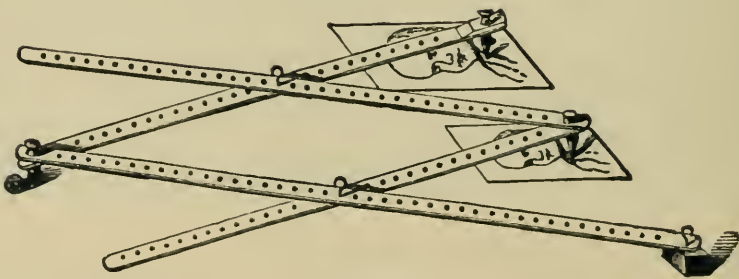
Pen Points, Pencil Points, Needle Points, for 3½ in. Compasses.....	each	\$1.00
“ “ “ “ 5½ “ “ .....	“	1.25
“ “ “ “ Beam “ .....	“	.80
Screws and Nuts.....	“	.15
Shouldered Needles .....	“	.10
Handles for Drawing Pens, 4 in. ....	“	.35
“ “ “ 5½ or 6 in.....	“	.50

## PANTOGRAPHS.



No. 1038.

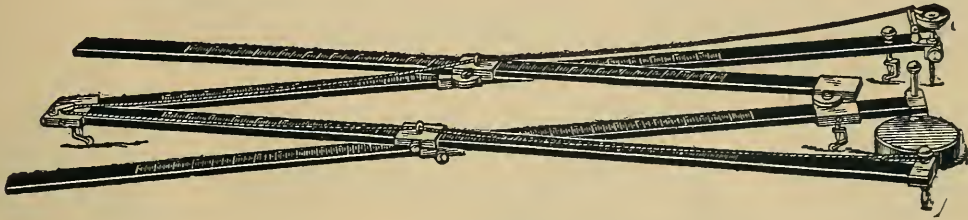
1038. Pantograph of Hardwood, with Brass Mountings, for reducing drawings, 22½ in. .... each \$3.50



No. 1039.

1039. Pantograph of Hardwood, with Brass Mountings, for reducing and enlarging, 21 in. arms. .... each \$ 1.75
1040. Pantograph of Hardwood, with Brass Mountings, for reducing and enlarging, 41 in. arms. .... each 5.00
1042. Is a small instrument. It is recommended by teachers as an excellent means of familiarizing children with form and proportion, and greatly assisting them in acquiring a knowledge of the rudiments of drawing by sight from original objects. .each .25

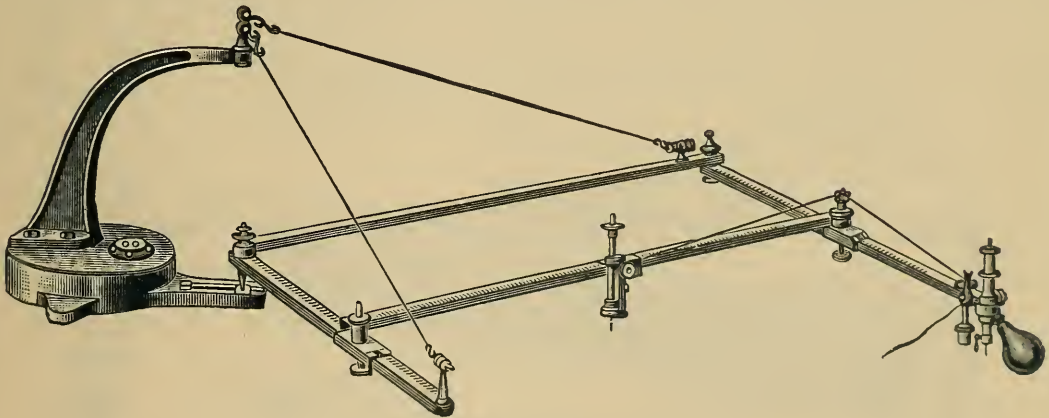
PANTOGRAPHS.



No. 1042a.

Pantograph, of triangular brass tubes for reducing and enlarging engravings, plans, drawings, etc., of the best construction, with all the fittings of parts of the latest improved patterns. The tracer and point are interchangeable and can be raised or lowered by a cord connecting it with the other. This instrument is one of the most accurate pantographs made, and is guaranteed to give satisfaction. Directions for setting are furnished with each instrument.

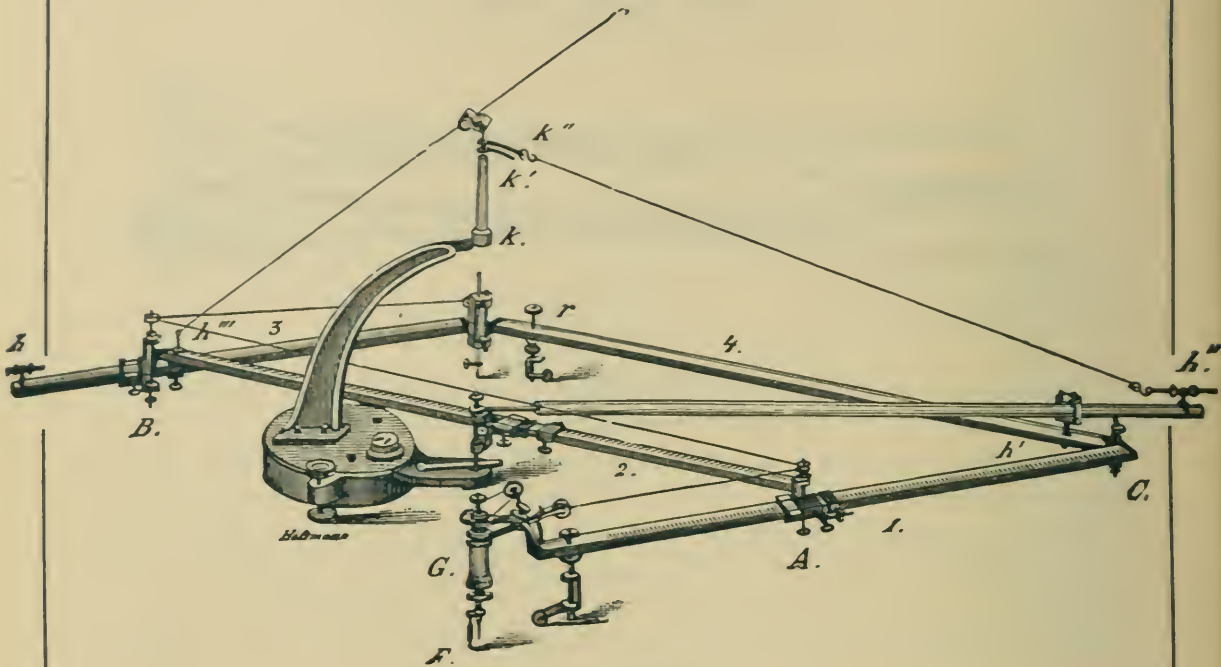
- |        |  |         |
|--------|--|---------|
| 1042a. | Pantograph of brass, arms 25 in. long, range 1 to 4..... | \$40.00 |
| 1042b. | “ “ “ 30 “ “ “ 1 to 10.....                              | 60.00   |



No. 1044.

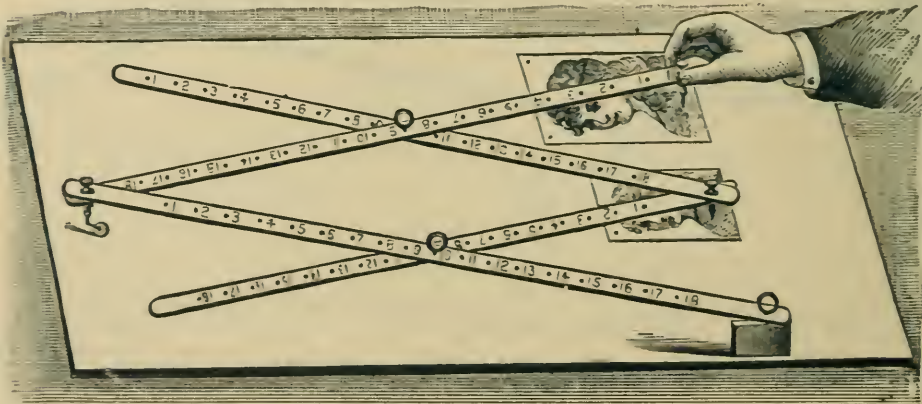
- |       |   |      |          |
|-------|---|------|----------|
| 1043. | Suspended Pantograph of square wooden bars, 28 in. long, in case .....  | each | \$ 38.00 |
| 1044. | Suspended Pantograph of square metal tubes, 33 in. long, divided into mm., enlarging or reducing all proportions from 1-20 to 1-5, in wooden case ..... | each | 125.00   |

PANTOGRAPHS.



No. 1045.

1045. Suspended Pantograph of square metal tubes,  $37\frac{3}{4}$  in. long, divided into mm. with verniers reading to 1-10 mm., and with micrometer to adjust the wanted proportion, enlarging or reducing in all proportions from 1-20 to 1-1. All joints are pivot joints, and the standard is provided with a spirit level to adjust the instrument to a horizontal position. The drawing point can be raised or lowered by a lever at the tracing point. No better instrument is made for the most accurate work. In wooden case..... each \$200.00

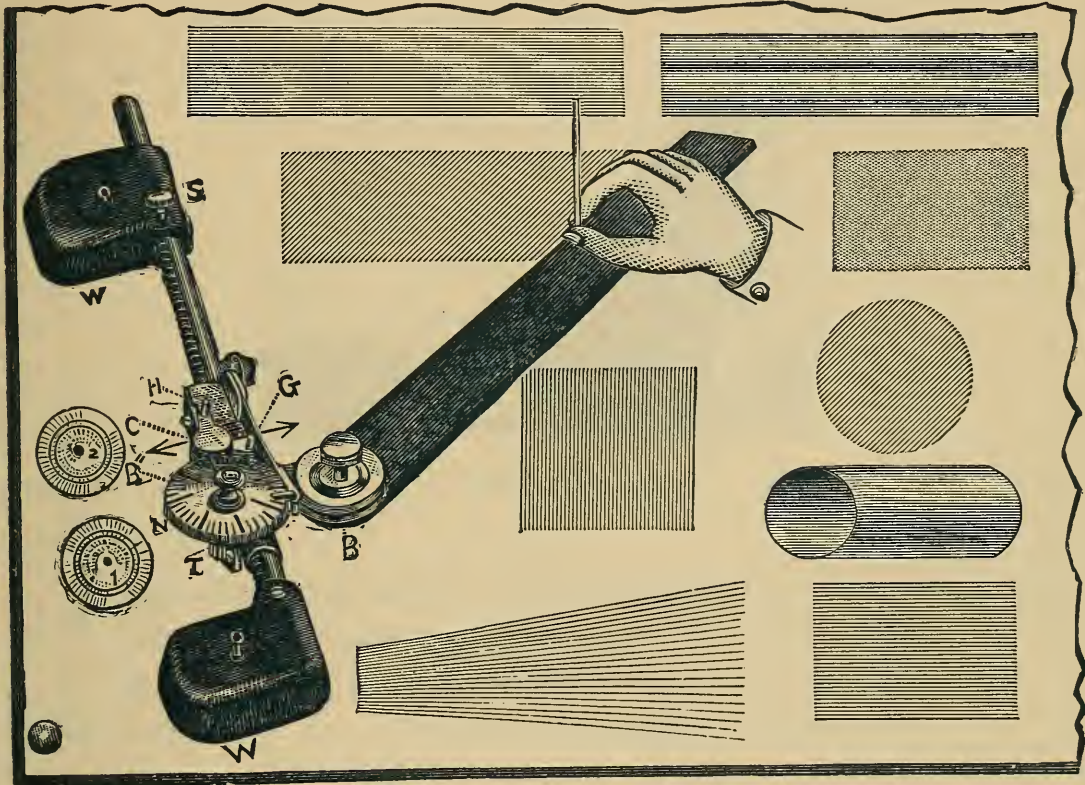


No. 1046.

1046. Heavily mounted, with Nickel-plated Elbow-joint Wheel, Pencil Holder and exchangeable point, finely polished, black figures, in neat box, 21 in. long..... each \$2.50

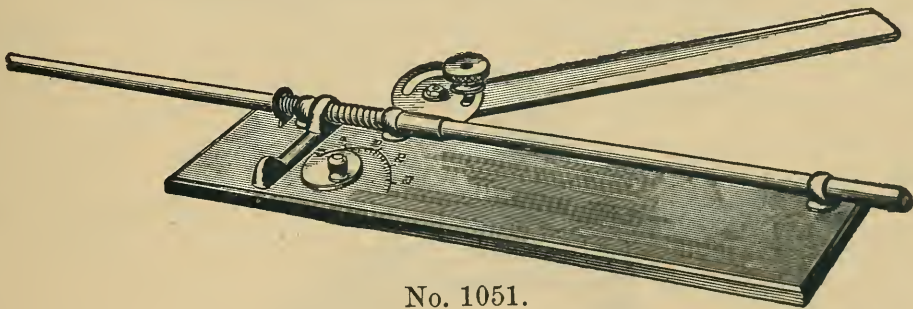


# SECTION LINERS.



No. 1047.

- |       |  |      |        |
|-------|--|------|--------|
| 1047. | Section Liner, blade 12 in. long .....   | each | \$6.50 |
| 1048. | “ like No. 1047, blade 14 in. long ..... | “    | 7.50   |



No. 1051.

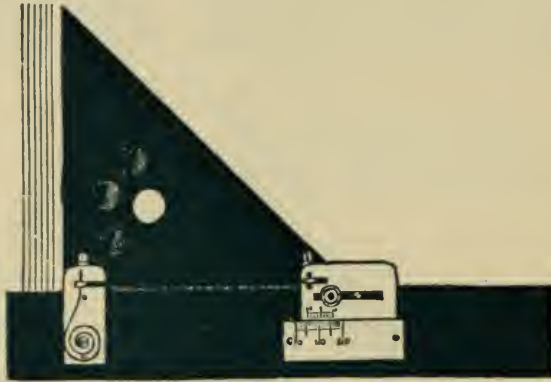
- |       |   |      |        |
|-------|---|------|--------|
| 1051. | Practical Section Liner, of Hardwood, with Nickel-plated Mountings, in case ..... | each | \$1.50 |
|-------|---|------|--------|

The particular advantage of this instrument is in its adaptability as a shader for concave, convex, curved and cylindrical surfaces. For such shading, scarcely an extra move or thought is necessary beyond that required in the simple process of section-lining or cross-hatching. The small thumb-wheel, which is turned in cylindrical shading, is in such a position that the thumb and second finger, with which it is turned, rest naturally upon it, leaving the fore-finger free to manipulate the lever which moves the straight edge.

The draftsman will find it worth the price asked, for the simple purpose of spacing and ruling, preparatory to lettering.

Full description furnished with every instrument.

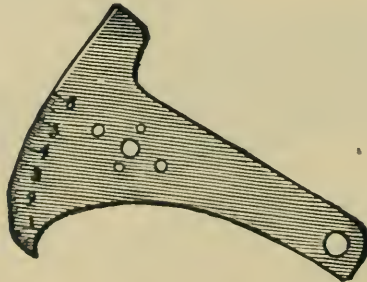
SECTION LINERS.



No. 1053.

1053. Patent Section Liner, Hard Rubber, German Silver Mountings, a very reliable and simple instrument, which requires hardly any practice to work it. By the scale and vernier the smallest distances can be regulated..... each \$3.50

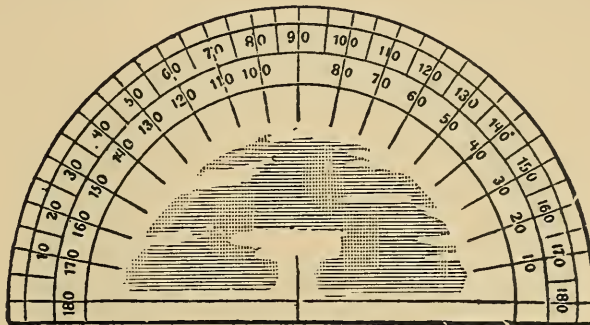
TEMPLER ODONTOGRAPH.



No. 1054.

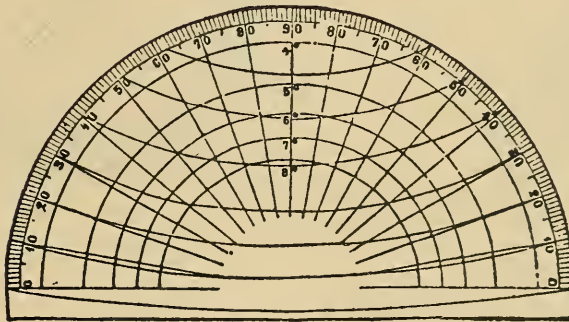
1054. Templet. Odontograph, for describing Teeth of Gear Wheels, a useful instrument for Mechanical Drawing, with full description, in case..... each \$3.50

## HORN PROTRACTORS.



No. 1055.

1055.	Semicircular Horn Protractor,	4 $\frac{1}{4}$ -in. diameter,	1 degree....each	\$ .15
1056.	“	“	5 $\frac{1}{4}$ “ $\frac{1}{2}$ “ .... “	.30
1057.	“	“	6 $\frac{1}{4}$ “ $\frac{1}{2}$ “ .... “	.35
1058.	“	“	7 “ $\frac{1}{2}$ “ .... “	.50
1059.	“	“	8 “ $\frac{1}{2}$ “ .... “	.70



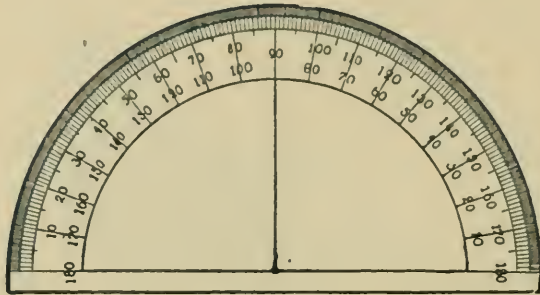
No. 1060.

1060.	Railroad Curve Protractor,	8 in., $\frac{1}{2}$ degree, with Circular Curves,	from $\frac{1}{2}$ degree to 8 degrees, Scale 400 feet to the in..... each	\$1.60
-------	----------------------------	--	--	--------

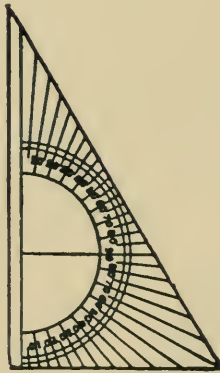
## PAPER PROTRACTORS.

1061.	Circular Protractor on Drawing Paper,	8-in. diam., in $\frac{1}{2}$ degree..	Each	\$ .20
1062.	“	“	14 “ “ $\frac{1}{4}$ “ ..	.30
1063.	“	Bristol Board, 8 “	“ $\frac{1}{2}$ “ ..	.20
1064.	“	“	14 “ “ $\frac{1}{4}$ “ ..	.40
1065.	“	Tracing Paper, 8 “	“ $\frac{1}{2}$ “ ..	.20
1066.	“	“	14 “ “ $\frac{1}{4}$ “ ..	.30

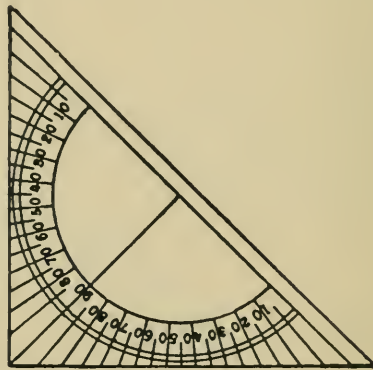
# CELLULOID PROTRACTORS.



No. 1070.




No. 1078.

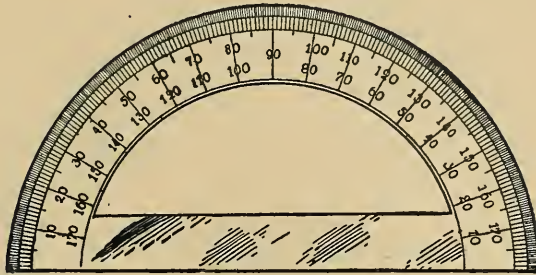


No. 1082.

								Each		
1068.	Celluloid Semicircular, Bevel Edge, 6-in. diam. ....							\$3.00		
1070.	Semicircular Transparent Celluloid Protractor, 6-in. diam., $\frac{1}{2}$ degree							.75		
1072.	"	"	"	"	8	"	"	$\frac{1}{2}$ "	1.20	
1074.	"	"	"	"	6	"	"	$\frac{1}{2}$ "	1.50	
1076.	"	"	"	"	8	"	"	$\frac{1}{2}$ "	2.25	
1078.	Celluloid Protractor Triangle, 30×60 degrees, 5	"	"	"	1	"	"	"	.50	
1079.	"	"	"	30×60	"	6	"	"	1	.60
1080.	"	"	"	30×60	"	7	"	"	1	.70
1082.	"	"	"	45	"	5	"	"	1	.50
1083.	"	"	"	45	"	6	"	"	1	.70
1084.	"	"	"	45	"	7	"	"	1	.90

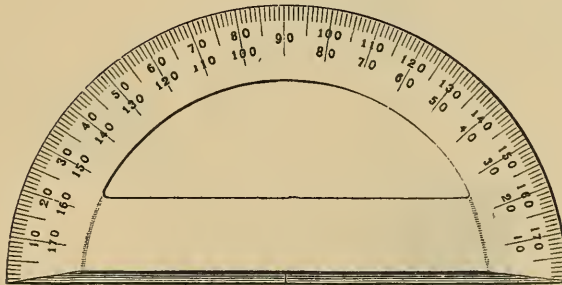
Each instrument stamped H. S. C. Co. and with trademark 

# METAL PROTRACTORS.



No. 1086.


1086.	Semicircular, Brass, 3 $\frac{3}{4}$ -in. diameter, 1 degree	..... each	\$	.10
1087.	“ “ 4 $\frac{1}{4}$ “ “ 1 “	..... “		.25
1088.	“ “ 5 $\frac{1}{8}$ “ “ $\frac{1}{2}$ “	..... “		.50
1089.	“ “ 6 $\frac{3}{8}$ “ “ $\frac{1}{2}$ “	..... “		.75
1090.	“ German Silver, 4 $\frac{1}{4}$ -in. diameter, 1 degree	.... “		.60
1091.	“ “ 5 $\frac{1}{8}$ “ “ $\frac{1}{2}$ “	.... “		.80
1092.	“ “ 6 $\frac{3}{8}$ “ “ $\frac{1}{2}$ “	.... “		1.00
1093.	“ “ 7 $\frac{1}{2}$ “ “ $\frac{1}{2}$ “	.... “		1.25
1094.	“ “ 8 $\frac{1}{2}$ “ “ $\frac{1}{2}$ “	.... “		1.60



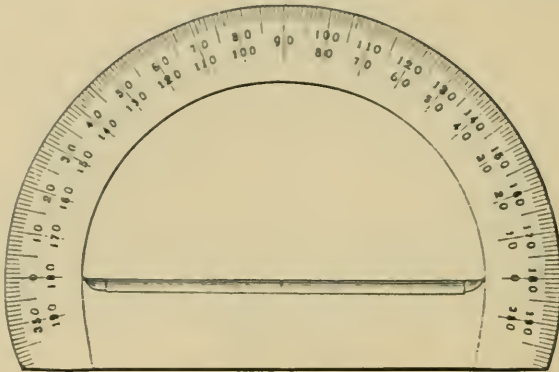
No. 1096.

**CENTER ON OUTER EDGE.**

1096.	Semicircular, German Silver, beveled edge, 1 degree, 4 in...	each	\$	1.50
1097.	“ “ “ $\frac{1}{2}$ “ 5 “	... “		2.25
1098.	“ “ “ $\frac{1}{2}$ “ 6 “	... “		2.75
1099.	“ “ “ $\frac{1}{4}$ “ 6 “	... “		3.50
1100.	“ “ “ $\frac{1}{2}$ “ 7 “	... “		4.25
1101.	“ “ “ $\frac{1}{2}$ “ 8 “	... “		5.00

Each instrument stamped H. S. C. Co. and with trademark 

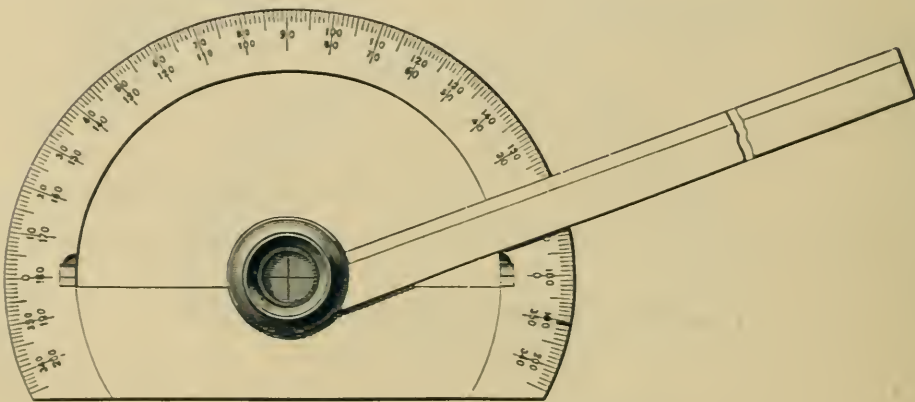
**METAL PROTRACTORS.**



No. 1103.

**CENTER ON INNER EDGE.**

1103.	Semicircular, German Silver, beveled edge, 1 degree, 4 in...	each	\$2.00
1104.	" " " " $\frac{1}{2}$ " 5 " ... "	"	2.50
1105.	" " " " $\frac{1}{2}$ " 6 " ... "	"	3.00
1106.	" " " " $\frac{1}{4}$ " 6 " ... "	"	3.50

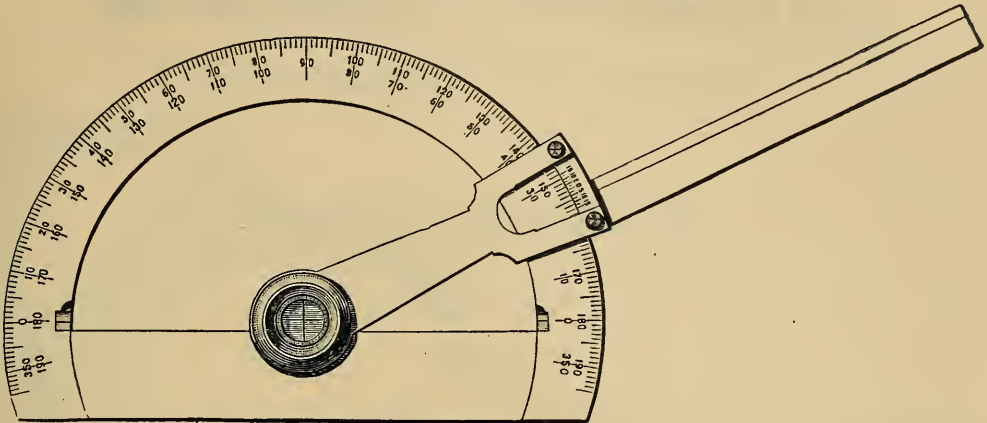


No. 1108.

**MOVABLE ARM AND HORN CENTER.**

1108.	Semicircular, German Silver, $\frac{1}{2}$ degree, 6 in., length of arm beyond outer edge, 6 in .....	each	\$7.50
1109.	Semicircular, German Silver, $\frac{1}{2}$ degree, 7 in., length of arm beyond outer edge, 6 $\frac{1}{2}$ in. ....	each	9.00

METAL PROTRACTORS.

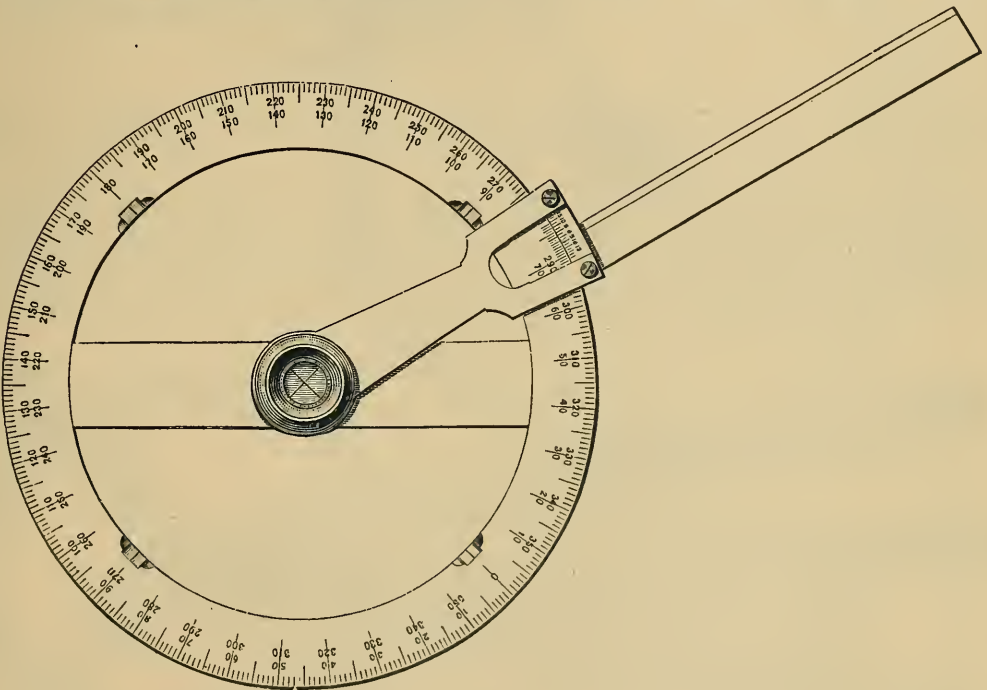


No. 1112.

SEMICIRCULAR WITH VERNIER AND HORN CENTER.

						Each
1112.	German Silver,	$\frac{1}{2}$ degree,	$5\frac{1}{2}$ in.,	Vernier reading to 3 minutes..		\$10.50
1114.	"	$\frac{1}{4}$ "	8 "	" "	1 minute ..	14.00
1116.	"	$\frac{1}{4}$ "	10 "	" "	1 " ..	17.50

Length of arm beyond outer edge of Protractors, Nos. 1112,  $5\frac{1}{2}$  in.; 1114, 6 in.; 1116,  $6\frac{1}{2}$  in.  
Morocco Leather Case, Silk Velvet Lined.....Each \$3.75 4.25 4.75




No. 1118.

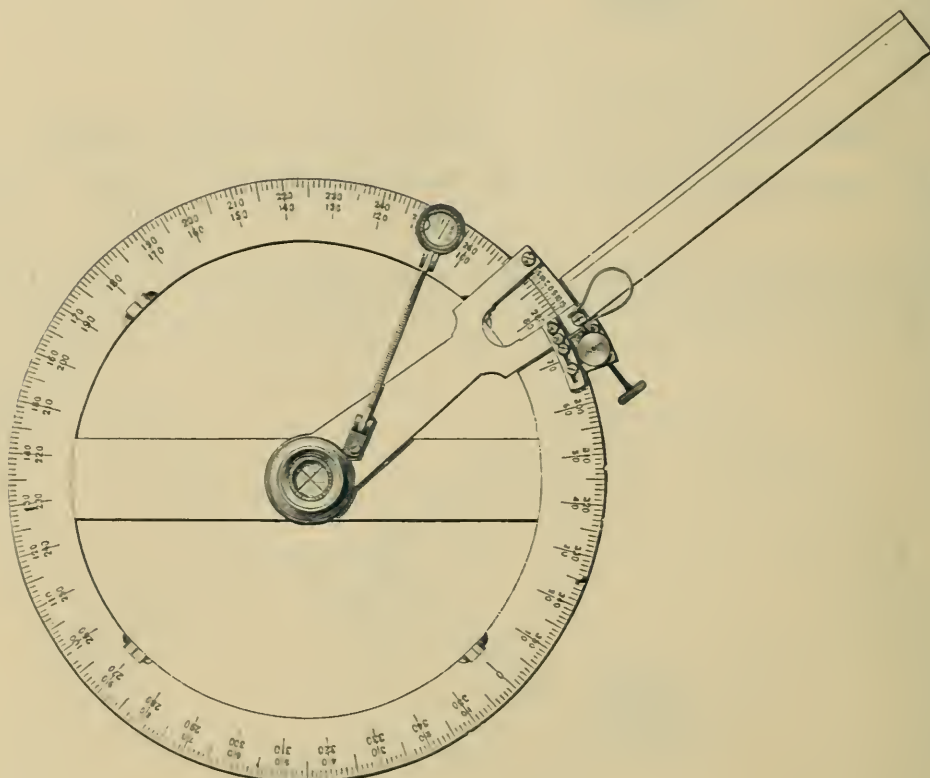
CIRCULAR WITH VERNIER AND HORN CENTER.

						Each
1118.	German Silver,	$\frac{1}{2}$ degree,	$5\frac{1}{2}$ in.,	Vernier reading to 3 minutes..		\$14.00
1120.	"	$\frac{1}{4}$ "	8 "	" "	1 minute ..	16.00
1122.	"	$\frac{1}{4}$ "	10 "	" "	1 " ..	20.00

Length of arm beyond outer edge of Protractors, Nos. 1118,  $5\frac{1}{2}$  in.; 1120, 6 in.; 1122,  $6\frac{1}{2}$  in.  
Morocco Leather Case, Silk Velvet Lined.....Each \$4.25 5.00 5.75

Each instrument stamped H. S. C. Co. and with trademark 

METAL PROTRACTORS.




No. 1124.

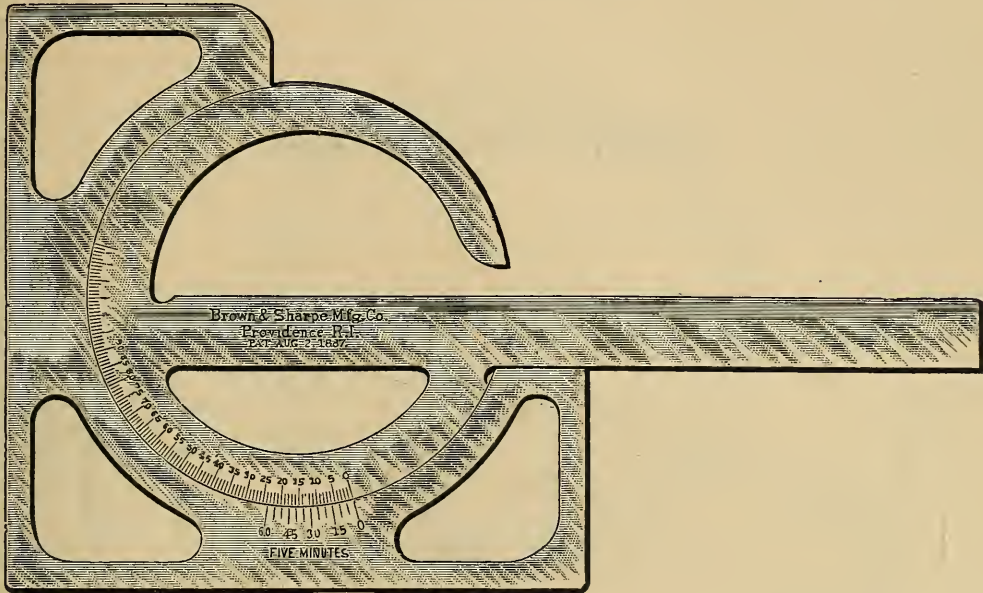
1124. Circular, German Silver,  $\frac{1}{4}$  degree, 8-in. diameter, Vernier reading to 1 minute, with Clamp Screw, Micrometer Adjusting Screw to Vernier and Magnifying Lens. . . . . each \$23.50

Morocco Leather Case, Silk Velvet Lined, for No. 1124. . . . . " 5.00



Each instrument stamped H. S. C. Co. and with trademark 

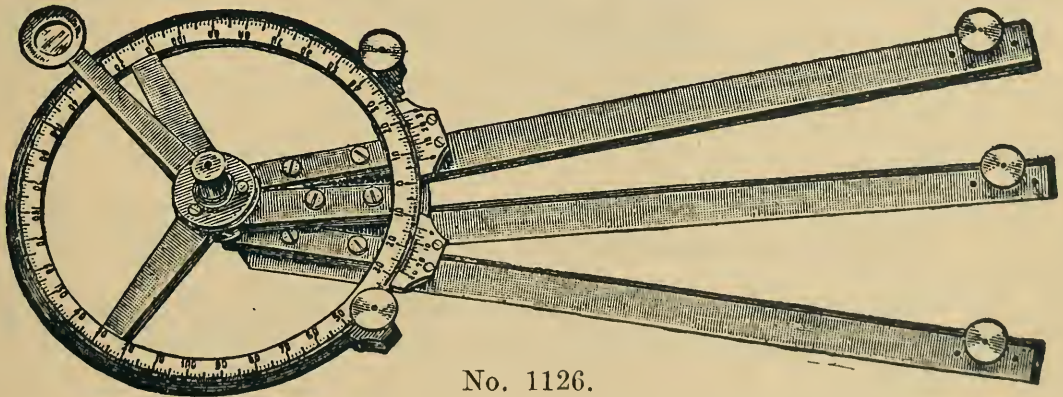
**DRAFTSMAN'S PROTRACTOR.**



No. 1125.


- |        |  |      |        |
|--------|--|------|--------|
| 1125.  | Draftsman's Steel Protractor, with directions..... | each | \$6.50 |
| 1125a. | “ “ “ in Morocco Case .....                        | “    | 7.75   |

This Protractor is made of sheet steel. The blade is  $8\frac{1}{2}$  inches long. The circle is graduated to degrees, and the Vernier reads to 5 minutes. This instrument is used chiefly in connection with a T Square or Straight Edge; being perfectly flush on each side, it can be used either side up and on either edge of the blade. This makes it particularly convenient in dividing circles, transferring angles, drawing oblique lines at right angles to each other, or laying off given angles on each side of a line without changing the setting.

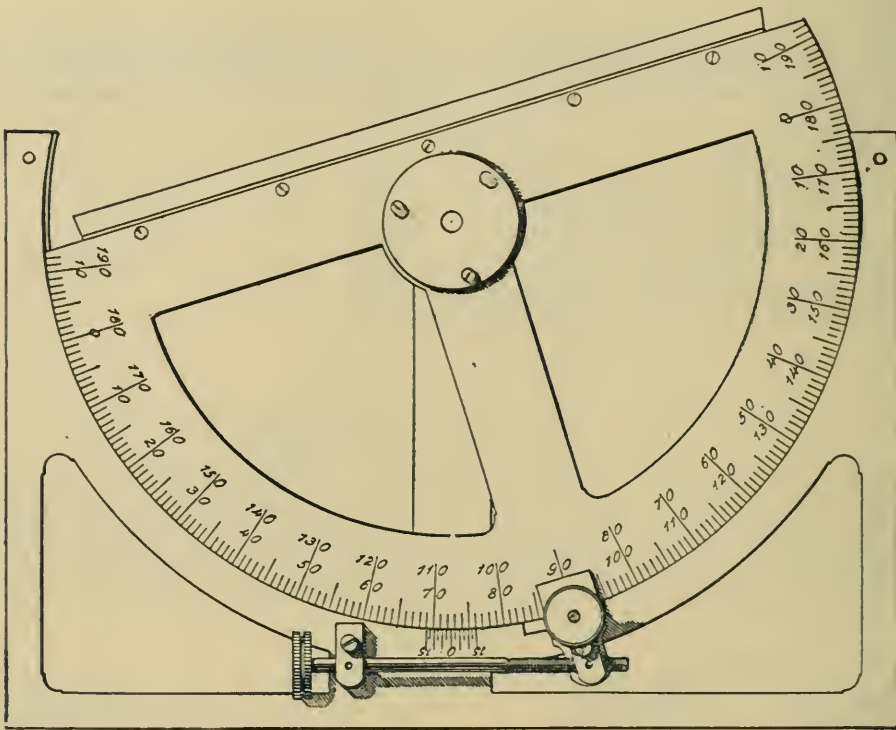


No. 1126.

- |       |  |      |         |
|-------|--|------|---------|
| 1126. | Three-Arm Protractor or Station Pointer, $6\frac{1}{2}$ -in. diameter, Arms 16 in. long, with extension pieces to lengthen to $27\frac{1}{2}$ in. Divided $\frac{1}{2}$ degree, the two outer Arms with Verniers reading to 1 minute, with Magnifying Lens. In substantial Wooden Case ..... | each | \$80.00 |
|-------|--|------|---------|

Each instrument stamped H. S. C. Co. and with trademark 


## CROZET PROTRACTOR.



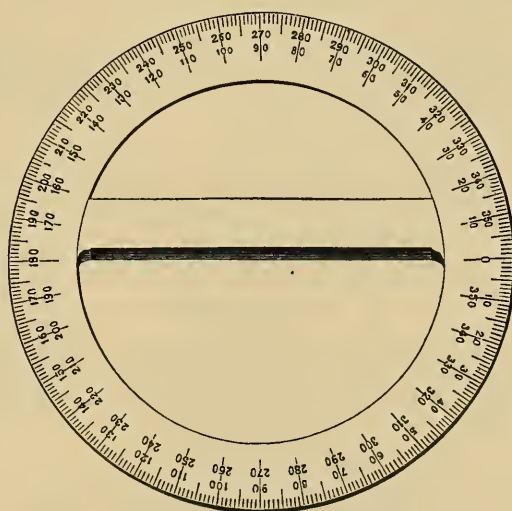
No. 1127.

1127. Crozet Protractor, 8-in. diameter, divided to  $\frac{1}{2}$  degrees, with Vernier reading to 1 minute, with Tangent. In case.... each \$40.00

An extremely useful and practical instrument, which may be used along a straight edge, and angles set off without the necessity of bringing the center of the protractor over the starting point.

Each instrument stamped H. S. C. Co. and with trademark 

**PROTRACTORS.**



No. 1128.

- |       |  |      |        |
|-------|--|------|--------|
| 1128. | Circular German Silver Protractor, 5 in., Beveled Edge, divided to $\frac{1}{2}$ degree .....  | each | \$5.50 |
| 1132. | Ivory Square Protractor, 8 × 2 in., divided, whole degrees, $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{5}{8}$ , $\frac{3}{4}$ , $\frac{7}{8}$ , 1 in. Scales, Scale of Chords, Diagonal Scale, Scales of 20, 25, 30, 35, 40, 45, 50, 60 parts per in., Scale of 40 on lower edge .....   | each | 5.50   |
| 1138. | Ivory Square Protractor, 6 × 2 in., divided, whole degrees, $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{5}{8}$ , $\frac{3}{4}$ , $\frac{7}{8}$ , 1, $1\frac{1}{8}$ , $1\frac{1}{4}$ , $1\frac{1}{2}$ in. Scales, Scale of Chords, Diagonal Scale, Scales of 30, 35, 40, 45, 50, 60 parts per in., Scale of 40 on lower edge ..... | each | 4.35   |
| 1140. | Ivory Square Protractor, 6 × $1\frac{3}{4}$ in., divided, whole degrees, $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{5}{8}$ , $\frac{3}{4}$ , $\frac{7}{8}$ , 1, in. Scales, Scale of Chords, Diagonal Scale, Scales of 30, 35, 40, 45, 50, 60 parts per in., Scale of 40 on lower edge .....                                     | each | 2.00   |
| 1144. | Ivory Square Protractor, 6 × $1\frac{3}{4}$ in., divided, whole degrees, $\frac{1}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , 1 in. Scales, Scale of Chords, Diagonal Scale, Scales of 25, 30, 35, 40, 45 parts per in. ....  | each | 1.60   |
| 1146. | Boxwood Square Protractor, 6 × $1\frac{3}{4}$ in., divided, whole degrees, 4 Scales, $\frac{1}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , 1 in., Diagonal Scales, Scale of Chords. .  | each | .40    |

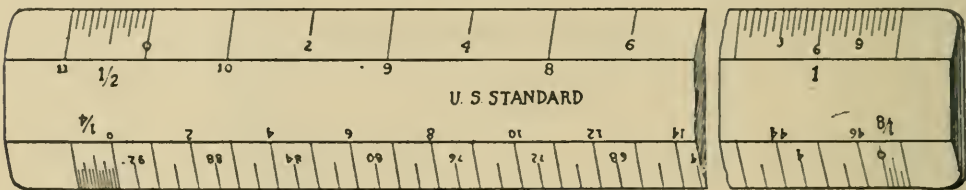
# SCALES.

**BOXWOOD, STEEL, AND BOXWOOD WITH WHITE CELLULOID EDGES.**

Our scales are made of the best seasoned boxwood, the graduations are distinct, machine divided and guaranteed accurate. U. S. Standard Machine divided.

All our Scales with white celluloid edges are made of the best seasoned boxwood, and have inlaid divided edges on white celluloid, thus showing the black divisions in a striking and legible manner.

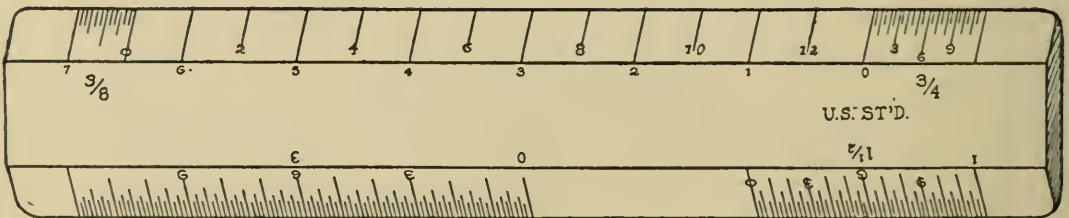
## FLAT BOXWOOD SCALES.



No. 1152.

1150.	Plain Edge, 6 in.,	divided $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{1}{2}$ , 1 in. to the foot	..... each	\$ .50
1152.	“ 12 “	“ “ “ “ “ “	..... “	.75
1154.	“ 12 $\frac{1}{2}$ “	“ “ “ “ “ “	..... “	.80
1156.	“ 18 “	“ “ “ “ “ “	..... “	1.50
1158.	“ 24 “	“ “ “ “ “ “	..... “	2.00
1160.	“ 24 “	“ $\frac{1}{8}$ , $\frac{1}{4}$ , in. to the foot and $\frac{1}{16}$ in. full size	“	2.00

Scale No. 1154 has the advantage of covering 100 ft. on  $\frac{1}{8}$  in., 50 ft. on  $\frac{1}{4}$  in. and 25 ft. on  $\frac{1}{2}$  in. scales.



No. 1162.

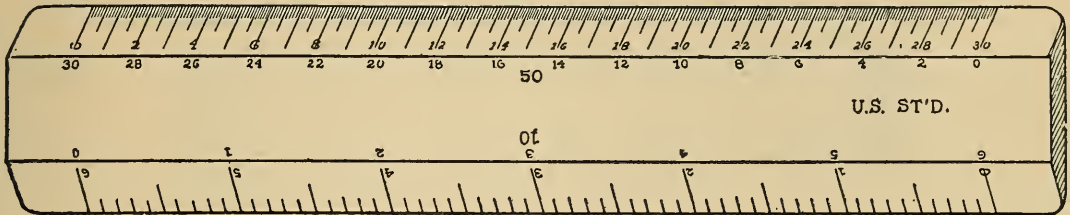
1162.	Plain Edge, 12 in.,	divided $\frac{3}{8}$ , $\frac{3}{4}$ , $1\frac{1}{2}$ , 3 in. to the foot	..... each	\$ .75
1163.	“ 18 “	“ “ “ “ “ “	..... “	1.50
1164.	“ 24 “	“ “ “ “ “ “	..... “	2.00

**Both Sides Beveled and Divided.**

1166.	Plain Edge, 12 in.,	divided $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{1}{2}$ , $1 \times \frac{3}{8}$ , $\frac{3}{4}$ , $1\frac{1}{2}$ , 3 in. to the foot	“	1.25
1167.	“ 18 “	“ “ “ “ “ “ “ “	“	2.25
1168.	“ 24 “	“ “ “ “ “ “ “ “	“	3.00

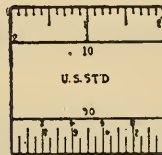
Special Scales made to order.

**FLAT BOXWOOD CHAIN SCALES.**



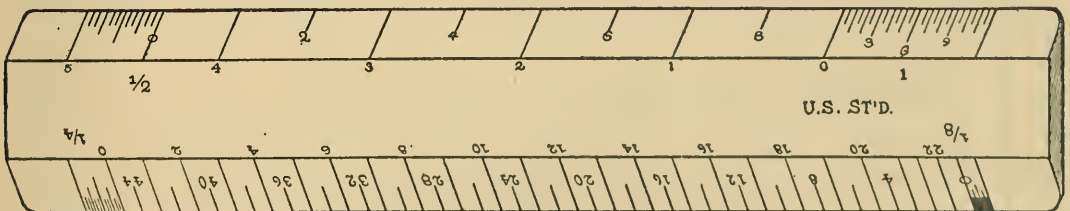
No. 1170.

1170.	Plain Edge, 6 in.,	divided 10 × 50	parts to the in.	.....	each	\$ .50
1171.	“ 6 “	“ 20 × 40	“	.....	“	.50
1172.	“ 6 “	“ 30 × 60	“	.....	“	.50
1173.	“ 6 “	“ 80 × 100	“	.....	“	.75
1175.	“ 12 “	“ 10 × 50	“	.....	“	.75
1176.	“ 12 “	“ 20 × 40	“	.....	“	.75
1177.	“ 12 “	“ 30 × 60	“	.....	“	.75
1178.	“ 12 “	“ 80 × 100	“	.....	“	1.20



1180.	Plain Edge, Offset, 2-in.,	divided 10 × 50	parts to the in.	.....	each	\$ .40
1181.	“ “ 2 “	“ 20 × 40	“	.....	“	.40
1182.	“ “ 2 “	“ 30 × 60	“	.....	“	.40
1183.	“ “ 2 “	“ 80 × 100	“	.....	“	.65
1184.	“ “ 3 “	“ 10 × 50	“	.....	“	.50
1185.	“ “ 4 “	“ 10 × 50	“	.....	“	.60
1190.	“ 12-in.,	divided 100 × 500	parts to the foot	....	“	.80
1191.	“ 12 “	“ 200 × 400	“	....	“	.80
1192.	“ 12 “	“ 300 × 600	“	....	“	.80
1193.	“ 12 “	“ 800 × 1000	“	....	“	1.25

**FLAT BOXWOOD SCHOOL SCALES.**

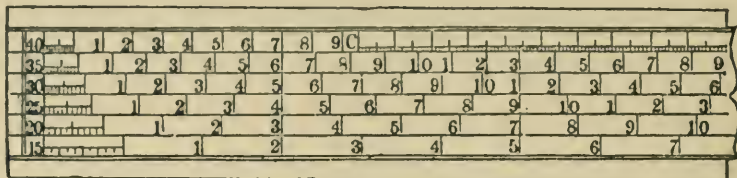


No. 1195.

1195.	Plain Edge, 6-in.,	divided $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{1}{2}$	and 1 in. to the foot	.....	each	\$ .35
1196.	“ 12 “	“ “ “	“ “ “	.....	“	.55

Special Scales made to order.

**FLAT BOXWOOD SCHOOL SCALES.**



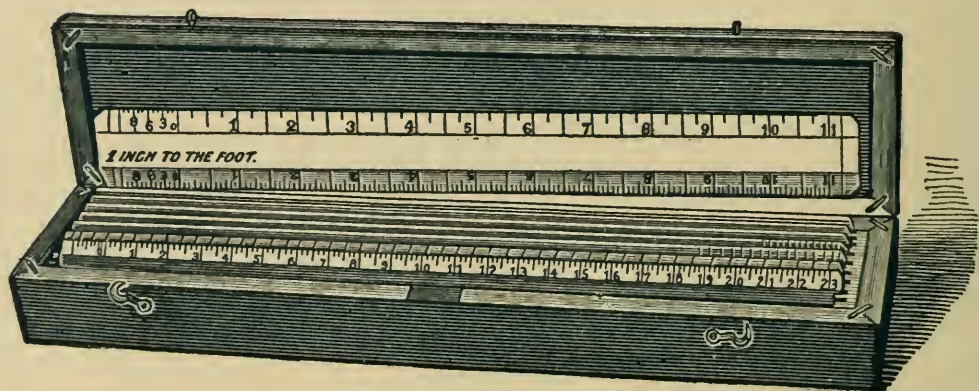
No. 1198.

1198. Boxwood Plotting Scale, 6-in.....each \$ .15

**FLAT BOXWOOD METRIC SCALES.**

1200.	Plain Edge, 10 cm. long, divided mm. and half mm.....each	\$ .50
1201.	“ 20 “ “ “ “ .....	“ .60
1202.	“ 30 “ “ “ “ .....	“ .75
1203.	“ 50 “ “ “ “ .....	“ 1.50

**FLAT BOXWOOD SCALES, IN SETS.**



No. 1212.

Each Scale has the same division on both edges, one edge reading from left to right, other edge from right to left.

				Sets.
1210.	4 Plain Edge, 12-in., divided	$\frac{1}{8}, \frac{1}{4}, \frac{1}{2}, 1$ in. to the foot.....		\$ 4.25
1212.	8 “ 12 “	“ $\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 3$ in. to the foot		7.50
1214.	12 “ 12 “	“ $\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 2, 3, 4, 6$ in. to the foot, and 1-16 in. full size..		11.00
1216.	4 “ 18 “	“ $\frac{1}{8}, \frac{1}{4}, \frac{1}{2}, 1$ in. to the foot.....		7.75
1218.	8 “ 18 “	“ $\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 3$ in. to the foot		14.25
1220.	12 “ 18 “	“ $\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 2, 3, 4, 6$ in. to the foot, and 1-16 in. full size..		21.00

Special Scales made to order.

**FLAT BOXWOOD CHAIN SCALES, IN SETS.**

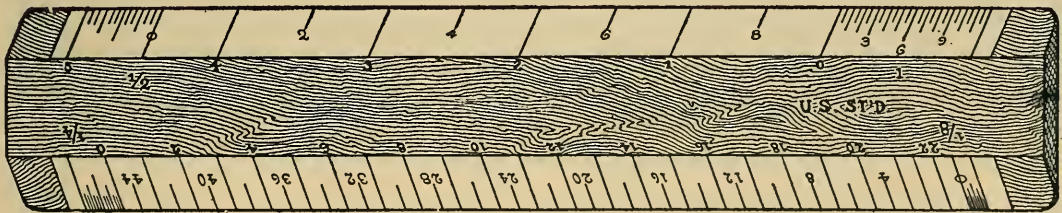
Each Scale has two different divisions, one on each edge, each of which is numbered to read both ways.

1222.	4 Plain Edge, 12-in., divided 10, 20, 30, 40, 50, 60, 80, 100 parts to the in. . . . .	Sets. \$4.70
1224.	8 Plain Edge, four 12-in. and four 2-in. Offset to match, divided 10, 20, 30, 40, 50, 60, 80, 100 parts to the in. . . . .	7.75

Each Scale has only one division, the same on both edges, and is numbered to read both ways on each edge.

1226.	6 Plain Edge, 12-in., divided 10, 20, 30, 40, 50, 60 parts to the in. . . . .	Sets. \$ 6.00
1228.	8 " 12 " " 10, 20, 30, 40, 50, 60, 80, 100 parts to the in. . . . .	9.00
1230.	12 " six 12-in. and six 2-in. Offset to match, divided 10, 20, 30, 40, 50, 60 parts to the in. . . . .	9.25
1232.	16 " eight 12-in. and eight 2-in. Offset to match, divided 10, 20, 30, 40, 50, 60, 80, 100 parts to the in. . . . .	15.50

**FLAT BOXWOOD SCALES, WITH WHITE EDGES.**



No. 1234.

1234.	White Edge, 6-in., divided $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{1}{2}$ , 1 in. to the foot . . . . .	Each \$ .75
1235.	" 12 " " " " " . . . . .	1.25
1236.	" 12 $\frac{1}{2}$ " " " " " . . . . .	1.35
1237.	" 18 " " " " " . . . . .	2.25
1238.	" 24 " " " " " . . . . .	3.00
1239.	" 24 " " $\frac{1}{8}$ , $\frac{1}{4}$ in. to the foot and 1-16 in. full size . . . . .	3.00
1240.	" 12 " " $\frac{3}{8}$ , $\frac{3}{4}$ , 1 $\frac{1}{2}$ , 3 in. to the foot . . . . .	1.25
1241.	" 18 " " " " " . . . . .	2.25
1242.	" 24 " " " " " . . . . .	3.00

Special Scales made to order.

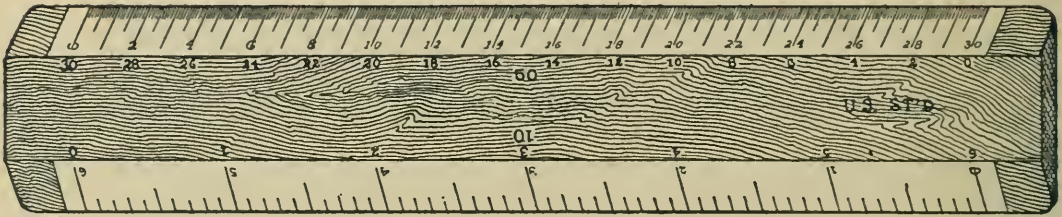
**FLAT BOXWOOD SCALES, WITH WHITE EDGES.**



No. 1243.

	Each
1243. White Edge, 6-in., divided $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{1}{2}$ , $1 \times \frac{3}{8}$ , $\frac{3}{4}$ , $1\frac{1}{2}$ , 3 in. to the foot, both sides beveled and divided, less than 1 in. wide, very convenient for the pocket. In leather sheath . . . . .	\$1.35
1244. White Edge, 12-in., divided $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{1}{2}$ , $1 \times \frac{3}{8}$ , $\frac{3}{4}$ , $1\frac{1}{2}$ , 3 in. to the foot, both sides beveled and divided. . . . .	2.00
1245. White Edge, 18-in., divided $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{1}{2}$ , $1 \times \frac{3}{8}$ , $\frac{3}{4}$ , $1\frac{1}{2}$ , 3 in. to the foot, both sides beveled and divided . . . . .	3.50
1246. White Edge, 24-in., divided $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{1}{2}$ , $1 \times \frac{3}{8}$ , $\frac{3}{4}$ , $1\frac{1}{2}$ , 3 in. to the foot, both sides beveled and divided . . . . .	4.75

**FLAT BOXWOOD CHAIN SCALES.**



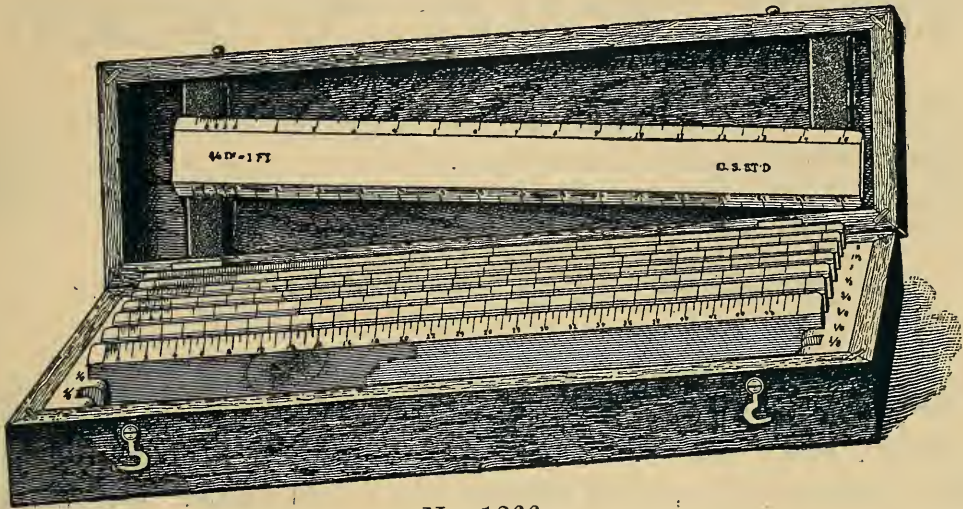
No. 1248.

	Each
1248. White Edge, 3-in., divided $10 \times 50$ parts to the in. . . . .	\$ .60
1249. " 4 " " $10 \times 50$ " . . . . .	.65
1250. " 6 " " $10 \times 50$ " . . . . .	.75
1251. " 6 " " $20 \times 40$ " . . . . .	.75
1252. " 6 " " $30 \times 60$ " . . . . .	.75
1253. " 6 " " $80 \times 100$ " . . . . .	1.00
1254. " 12 " " $10 \times 50$ " . . . . .	1.25
1255. " 12 " " $20 \times 40$ " . . . . .	1.25
1256. " 12 " " $30 \times 60$ " . . . . .	1.25
1257. " 12 " " $80 \times 100$ " . . . . .	1.75
1260. " 12 " " $100 \times 500$ parts to the ft. . . . .	1.25
1261. " 12 " " $200 \times 400$ " . . . . .	1.25
1262. " 12 " " $300 \times 600$ " . . . . .	1.25
1263. " 12 " " $800 \times 1000$ " . . . . .	1.75

Sets of any number of Scales with any kind of graduation, put up in wooden boxes.



**FLAT BOXWOOD SCALES, IN SETS.**



No. 1266.

Each Scale has the same division on both edges, one edge reading from left to right, the other from right to left.

					Set
1265.	4	White Edge,	12-in.,	divided $\frac{1}{8}, \frac{1}{4}, \frac{1}{2}, 1$ in. to the foot.....	\$ 6.25
1266.	8	"	12 "	" $\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 3$ in. to the foot	11.50
1267.	12	"	12 "	" $\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 2, 3, 4, 6$ in. to the foot and 1-16 in. full size..	17.00
1268.	4	"	18 "	" $\frac{1}{8}, \frac{1}{4}, \frac{1}{2}, 1$ in. to the foot.....	10.75
1269.	8	"	18 "	" $\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 3$ in. to the foot	20.25
1270.	12	"	18 "	" $\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 2, 3, 4, 6$ in. to the foot and 1-16 in. full size..	30.00

Each Scale has two different divisions, one on each edge, each of which is numbered to read both ways.

1272.	4	White Edge,	12-in.,	divided 10, 20, 30, 40, 50, 60, 80, 100 parts to the in.....	Set \$ 6.75
-------	---	-------------	---------	--	----------------

Each Scale has only one division, the same on both edges, and is numbered to read both ways on each edge.

1274.	6	White Edge,	12-in.,	divided 10, 20, 30, 40, 50, 60 parts to the in.	Set \$ 9.00
1275.	8	"	12 "	" 10, 20, 30, 40, 50, 60, 80, 100 parts to the in. ....	13.00

**FLAT BOXWOOD METRIC SCALES.**

					Each
1276.	White Edge,	10 cm. long,	divided mm. and half mm.....		\$ .75
1277.	"	20 "	" " " " " " .....		1.00
1278.	"	30 "	" " " " " " .....		1.25
1279.	"	50 "	" " " " " " .....		2.25

Special Scales made to order.

## SPECIAL SCALES TO ORDER.

We are called upon frequently to make Special Scales to order. To avoid error we give directions how to order Scales.

There are two distinctly different ways of dividing a Scale :

The "open divided" and the "full divided or Chain Scale."

### OPEN DIVIDED SCALES

are generally used in Architectural or Mechanical Drawing, and are divided in inches or parts of inches, which represent feet or full inches. The units are marked along the whole length of the edge and only the first unit is subdivided to inches and fractions.

In ordering open divided Scales it is therefore necessary to state that they are to be open divided, also length, shape and material, how many different divisions are wanted and which on each edge, and whether the figures should read from right to left, or from left to right, or both ways. Of course they can read both ways only when there is but one division on each edge. If other than the usual numbering is wanted, this must also be explained in the order.

### FULL DIVIDED OR CHAIN SCALES

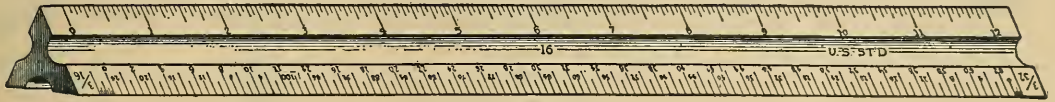
are those on which equal divisions and subdivisions are carried along the whole length of the edge. Therefore only one kind of division can be made on one edge. They are generally divided to decimals of inches, numbered continuous per 10 divisions, and are used by Surveyors and Civil Engineers, but they can be divided inches to the foot.

In ordering Chain Scales it is therefore necessary to state that they are to be Chain Scales, also length, shape and material, which divisions are wanted, and whether they should read from right to left, or from left to right, or both ways, and how they are to be numbered.

The safest way to order a Special Scale is to send us a sketch showing divisions and numbering, and to specify material and length. It is not necessary that such a sketch should show correct or actual divisions, if the value of the divisions (in inches, etc.) is stated.

# TRIANGULAR BOXWOOD SCALES.

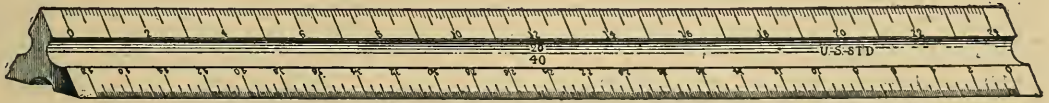
## WITH PLAIN EDGES.



No. 1281.

### ARCHITECTS'.

									Each
1280.	6-in.,	divided	$\frac{3}{32}$ , $\frac{3}{16}$ , $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , 1, 1½, 3 in.	to the foot,	$\frac{1}{16}$ in..				\$ .60
1281.	12 "	"	"	"	"	"	"	"	.. .90
1282.	12 "	"	$\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , 1, 1½, 2, 3, 4 "	"	"	"	"	"	.. .90
1283.	18 "	"	"	"	"	"	"	"	.. 2.25
1284.	24 "	"	"	"	"	"	"	"	.. 4.00



No. 1291.

### ENGINEERS'.

									Each
1290.	6-in.,	divided	10, 20, 30, 40, 50, 60 parts	to the in.....					\$ .60
1291.	12 "	"	"	"	"	"	"	"	.. .90
1292.	18 "	"	"	"	"	"	"	"	.. 2.25
1293.	24 "	"	"	"	"	"	"	"	.. 4.00
1294.	12 "	"	20, 30, 40, 50, 60, 80	"					.. 1.10
1295.	12 "	"	100, 200, 300, 400, 500, 600 parts	per foot.....					.. 1.50
1296.	2-in.	Offset Scale,	to Match No. 1290 to No. 1293.....						.. .60

### TRIANGULAR METAL SCALES.

							Each
1300.	12-in.,	Architects',	divided as No. 1281.....				\$2.50
1301.	12 "	Engineers',	" No. 1291.....				2.50
1302.	12 "	"	" No. 1294.....				2.50

### TRIANGULAR BOXWOOD METRIC SCALES.

							Each
1310.	Plain Edge,	20 cm.,	divided .01, .02, .03, .05, .025, .0125.....				\$1.25
1312.	"	30 "	" " " " " " .....				1.50
1314.	"	50 "	" " " " " " .....				2.40

**TRIANGULAR BOXWOOD SCALES, WITH WHITE EDGES.**



No. 1411.

**ARCHITECTS'.**

									Each
1400.	6-in.,	divided	$\frac{3}{32}, \frac{3}{16}, \frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 3$	in. to the foot,	$\frac{1}{16}$	in..			\$1.50
1401.	12 "	"	"	"	"	"	"	"	2.50
1402.	12 "	"	$\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 2, 3, 4$	"	"	"	"	"	2.50
1403.	18 "	"	"	"	"	"	"	"	4.50
1404.	24 "	"	"	"	"	"	"	"	6.50

**ENGINEERS'.**

									Each
1410.	6-in.,	divided	10, 20, 30, 40, 50, 60	parts to the in.	.....				\$1.50
1411.	12 "	"	"	"	"	"	"	"	2.50
1412.	18 "	"	"	"	"	"	"	"	4.50
1413.	24 "	"	"	"	"	"	"	"	6.50
1414.	12 "	"	20, 30, 40, 50, 60, 80	"	.....				2.50
1415.	12 "	"	100, 200, 300, 400, 500, 600	parts per foot.	.....				3.00

**TRIANGULAR SCALE GUARDS.**



No. 1421.

1421.	Triangular Scale Guard, Nickel Plated.	.....	each	\$ .20
-------	--	-------	------	--------

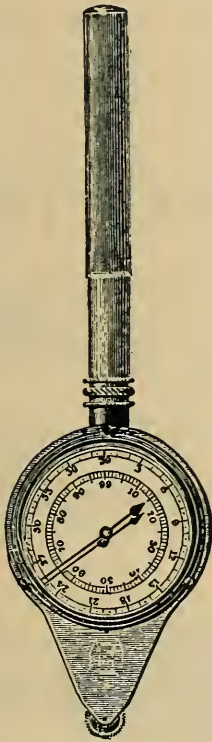
**PAPER SCALES.**

ENGINE DIVIDED, PRINTED ON BRISTOL BOARD 18 INCHES LONG.

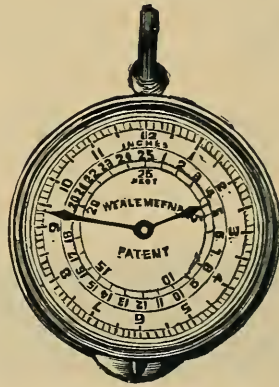
1500.	8 in Set, full divided in	$\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 3$	in. to the foot....	set	\$1.50
1502.	6 "	"	" 10, 20, 30, 40, 50, 60	parts to in. ....	" 1.10
1504.	Metric, $\frac{1}{2}$ meter long, divided in mm.	.....	.....	each	.20
	Single Scales of the above	.....	.....	"	.20

# MAP MEASURES.

(CHARTOMETERS.)



No. 1510.

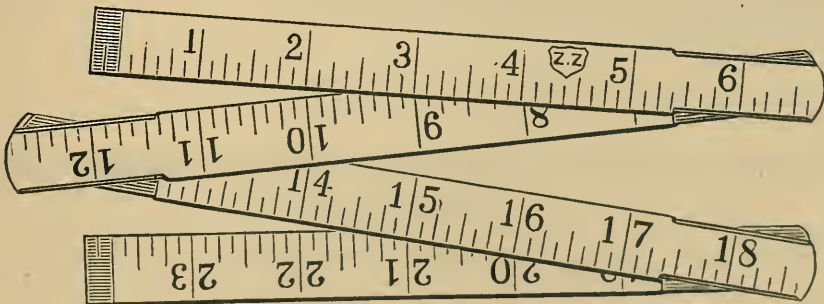


1512.

- |       |   |      |        |
|-------|---|------|--------|
| 1510. | Universal Map Measure, with handle..... | each | \$3.25 |
| 1512. | Map Measure .....                       | "    | 2.25   |

# FOLDING WOOD POCKET RULES.

ENGINEERS' POCKET RULES.



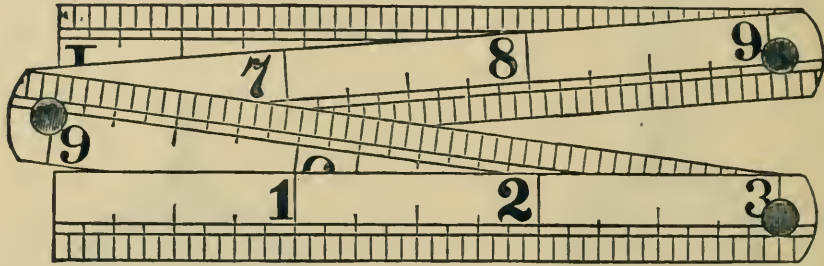
No. 1520.

These Pocket Rules are thin and light, and therefore more convenient than the common Joint Rules. By a peculiar preparation of the wood, shrinkage is entirely prevented. They are accurate and are provided with ingenious springs which hold the Rule in a straight line when open for easy measurement of vertical and horizontal distances.

**ENGINEERS' POCKET RULES.**

1520.	2 feet, 4 fold, divided	$\frac{1}{16} \times \frac{1}{16}$ in., with springs	..... each	\$ .25
1521.	3 " 6 " " "	" " " "	"	.30
1522.	4 " 8 " " "	" " " "	"	.45
1523.	5 " 10 " " "	" " " "	"	.55
1524.	6 " 12 " " "	" " " "	"	.65
1525.	8 " 16 " " "	" " " "	"	.85
1526.	4 " 8 " " $\frac{1}{16}$ and meter	" " " "	"	.45

**FOLDING STEEL POCKET RULES.**



No. 1527.



**Rule in Metal Bound Leather Case.**

All our Steel Rules being made of hardened steel, the corners and edges will not wear off, and the figures and divisions are always plain.

Graduated 16ths of inches both sides.

These rules are very neat and convenient for light work. They are made of spring steel and will bend to a 3-inch circle.

They occupy very little space, and are conveniently carried in the vest pocket.

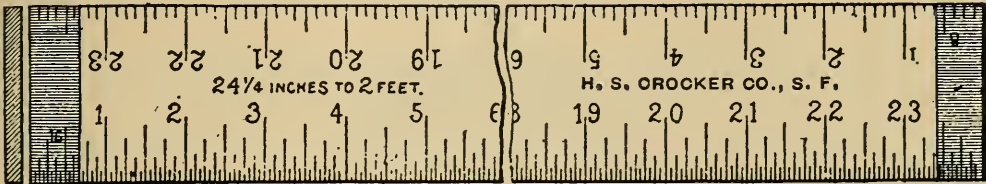
1527.	Folding Steel Pocket Rule, 1 foot, 4 fold.....	each	\$ .25
1528.	" " " 2 " 8 " .....	"	.50
1529.	" " " 3 " 12 " .....	"	.75
1530.	Leather Cases for above rules.....	"	.05

**ENGINEERS' POCKET RULES, WHITE ENAMEL, BRASS JOINTS.**

1531.	2 feet, 4 fold, divided	$\frac{1}{16} \times \frac{1}{16}$ in., with springs.....	each	\$ .40
1532.	3 " 6 " " "	" " " "	"	.50
1533.	4 " 8 " " "	" " " "	"	.60
1534.	5 " 10 " " "	" " " "	"	.75
1535.	6 " 12 " " "	" " " "	"	.90
1536.	8 " 16 " " "	" " " "	"	1.20
1537.	4 " 8 " " $\frac{1}{16}$ and meter,	"	"	.60

# SHRINKAGE RULES.

For Single and Double Shrinkage.

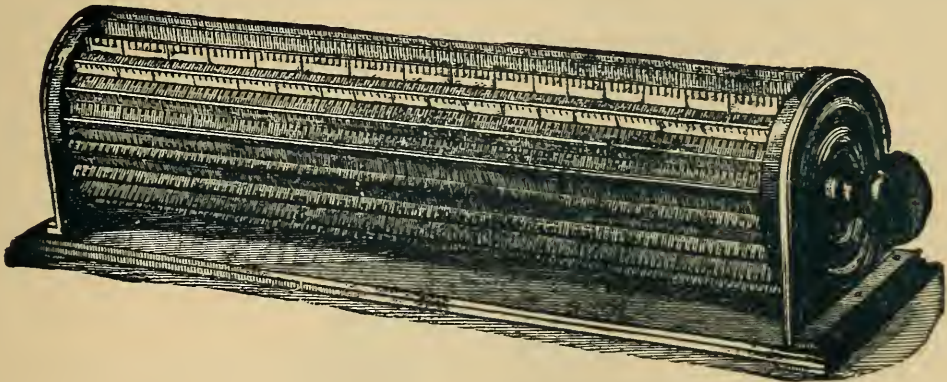


No. 1539B.

These Shrinkage Rules are of hard wood, brass tipped, about 1 1/2 inches wide by 1/2 inch thick, and divided to 1/8, 1/10, 1/2 and 1/16 inches.

1539A.	Shrinkage Rule,	$24\frac{2}{10} = 24$ in	.....	each	\$1.20
1539B.	“	$24\frac{1}{4} = 24$ “	.....	“	1.20
1539C.	“	$24\frac{3}{8} = 24$ “	.....	“	1.20
1539D.	“	$24\frac{1}{2} = 24$ “	.....	“	1.20
1539E.	“	$24\frac{3}{8} = 24$ “	.....	“	1.20
1539F.	“	$24\frac{2}{12} = 24$ “	.....	“	1.20
1539G.	“	$24\frac{1}{8} = 24$ “	.....	“	1.20

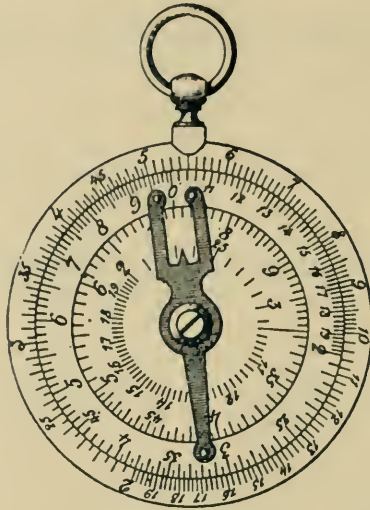
## THACHER'S CALCULATING INSTRUMENT.



No. 1540.

1540.	Thacher's Calculating Instrument, for performing the greatest variety of useful calculations, with greatest rapidity and accuracy, cylinder 18 in., in polished mahogany box. A book containing a full description of the instrument, and all rules for operating it, will be furnished with the instrument	.....	each	\$35.00
1541.	Thacher's Calculating Instrument, with 3-in. reading glass sliding on brass bar, adjustable to any part of the instrument and for focus.	.....	“	45.00

**CHARPENTIER CALCULATOR.**

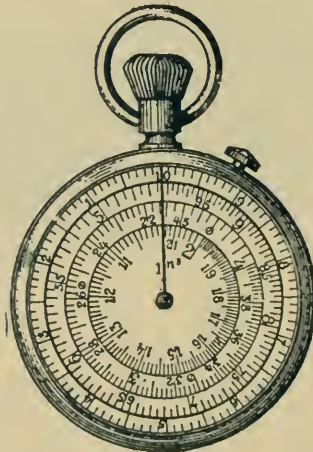


No. 1542.

1542. Charpentier Calculator.....each \$5.00

The Charpentier Calculator is a circular Slide Rule,  $2\frac{3}{8}$  in. diameter, with a circular slide which is revolved and set by the handle as may be required. This instrument reads scale against scale like the ordinary slide rule, and being made of metal is but slightly subject to atmospheric variations. Square roots, signs and tangents as well as logarithms may be found with it, and as the circular scale is equivalent to a straight one  $5\frac{7}{8}$  in. long, results may be read off with a fair degree of accuracy. The small dimensions and light weight of the instrument make it a most useful pocket companion.

**BOUCHER CALCULATOR.**



No. 1543.

1543. Boucher Calculator.....each \$8.50

The Boucher Calculator resembles an ordinary stem-winding watch, with glass-covered dials back and front. Ratios are set off by means of pointers or indices which, as well as the movable dial are moved by means of the "stem-winder" key. It is  $2\frac{1}{16}$  in. diameter by  $\frac{3}{16}$  in. thick and very convenient for the pocket.



# SLIDE RULES.

## TOPOGRAPHIC SLIDE RULES FOR ENGINEERS.

Total Length 10 in. German Silver.



No. 1545.

1545. Slide Rules (System Wild) with Indicator 360° or 400°....each \$13.00

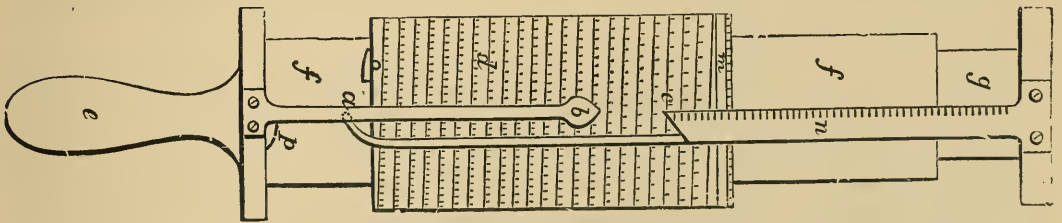


No. 1546.

1546. Slide Rules (System Kern), simplified pattern, 360° or 400°. The graduation  $\cos^2\pi$  is placed on the slide..... each \$10.00

1547. Slide Rules (System Kern), combination of 360° and 400°.. “ 10.00

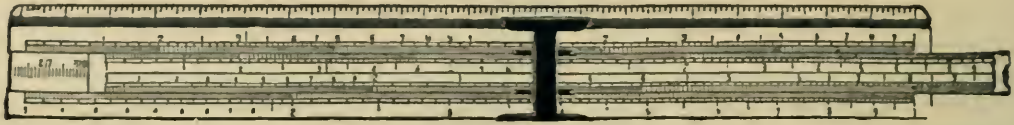
## FULLER'S SPIRAL SLIDE RULE.



No. 1548.

1548. Fuller's Spiral Slide Rule consists of a wooden cylinder which can be moved up or down or around a wooden axis held by a handle. The scale is divided on this cylinder. It is a single logarithmic scale 42 feet long, wound spirally. Ratios are established by means of a pointer attached to the axis at the handle and another attached to a brass tube sliding in the axis. This latter bears two indices whose distance apart is the axial length of the complete spiral. In Mahogany box, with directions....each \$30.00

**MANNHEIM SLIDE RULES.**



No. 1560.

- |       |  |      |         |
|-------|--|------|---------|
| 1560. | Slide Rule (Mannheim), 10-in., divided on celluloid facings,<br>with brass indicator, in case, with directions . . . . . | each | \$ 4.50 |
| 1561. | Like No. 1560, but indicator with glass face. . . . .  | “    | 5.00    |
| 1562. | Slide Rule (Mannheim), 20-in., divided on celluloid facings,<br>with brass indicator, in case, with directions. . . . .  | “    | 16.50   |
| 1564. | Like No. 1562, but indicator with glass face. . . . .  | “    | 17.50   |

The 20-in. Slide Rules have the great advantage that they admit of finer divisions and consequent closer reading than the 10-in. The longer rules are naturally more apt to warp and may give rise to complaint, but they are, nevertheless, often preferred on account of the advantages of the finer divisions.

**COLLEGE SLIDE RULE.**

The College Slide Rule is intended for the use of students, to enable them to become familiar with the slide rule without incurring the relatively heavy expense of obtaining the regular rule intended for professional use.

It is, in general, like our Mannheim Slide Rule, of the same size and with the same graduations, except that the vertical edge is not divided. The body of the rule and the slide are of thoroughly seasoned hardwood, and are backed by stout binder's board. The graduations are on a special strong and tough white paper facing and have a protective coating. The brass indicator or runner holds a piece of thin transparent celluloid marked with a hair-line. The index mark for the under side of the slide is also a hair-line on celluloid. On the under side of the rule there is a table of the most frequently occurring proportions and formulas.

- |       |   |      |        |
|-------|---|------|--------|
| 1566. | College Slide Rule, 10-in., with indicator and directions . . . . | each | \$1.25 |
|-------|---|------|--------|

**A. W. FABER'S IMPROVED CALCULATING RULE.**



No. 1568.

The Slide Rule has been defined as “an instrument for mechanically effecting calculations by logarithmic computation” (Pickworth, The Slide Rule), and it is said that “by its aid various arithmetical, algebraical and trigonometrical processes may be performed with ease and rapidity, the results obtained being sufficiently accurate for almost all practical requirements.”

The A. W. Faber Calculating Rule consists of a “stock” or “body” about 10 inches in length,  $1\frac{1}{4}$  inches in width, and  $\frac{3}{8}$  inch in thickness, a movable strip or “slide” inserted into the “body,” surfaces level, and a “runner” about an inch square fitted with glass, which sliding freely the entire length of the instrument, serves to connect the fine graduations of the several scales in the “body” and “slide.” The rule is made of boxwood, with celluloid facings.

A Manual or Book of Instructions of 35 printed pages and 12 diagrams accompanies each rule, explaining the general principles which govern the instrument, and furnishing practical illustrations of its usefulness.

1568. A. W. Faber's Calculating Rule,  $10\frac{1}{2}$ -in., with celluloid face. each \$3.50

1569. A. W. Faber's Calculating Rule,  $10\frac{1}{2}$ -in., with self-adjusting slide, in boxwood, celluloid face. . . . . “ 4.50



No. 1570.

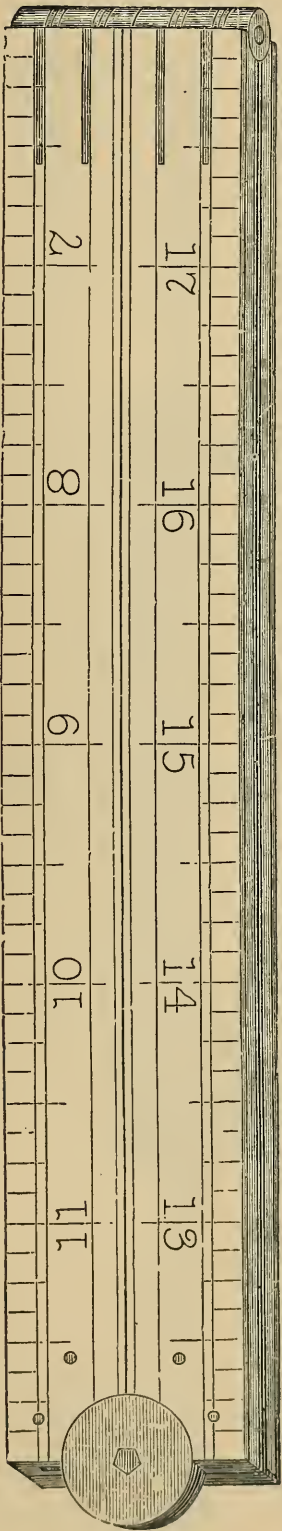
1570. A. W. Faber Calculating Rule,  $10\frac{1}{2}$ -in., with self-adjusting slide and digit indicator, in boxwood, celluloid face. . . . . each \$ 5.00

1571. Same as above, 20 inches long. . . . . “ 16.00



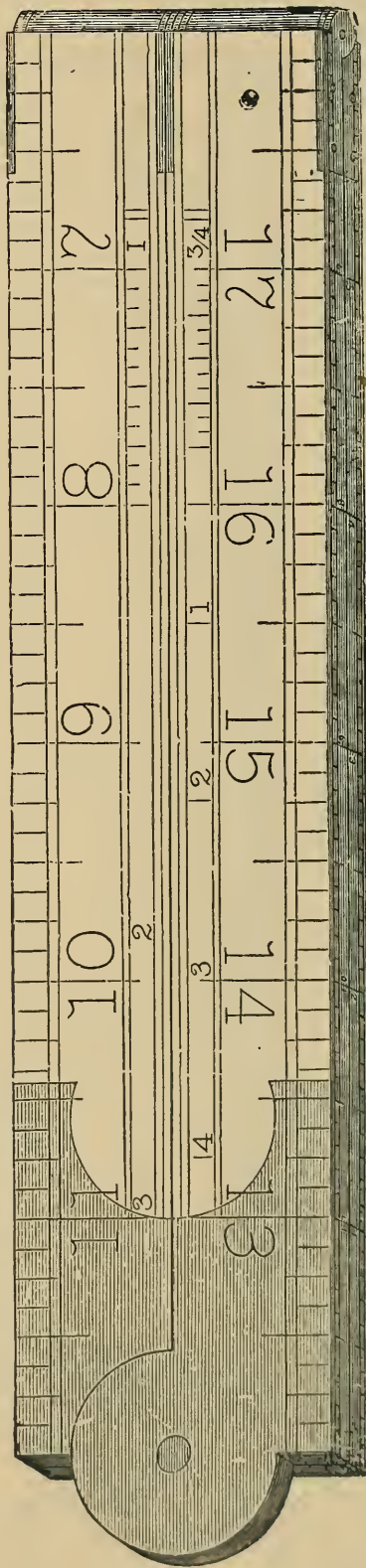
FOLDING SCALE RULES—BOXWOOD.

1582. Boxwood, Architects, with Beveled Edges, Arch Joint, Edge Plates, divided  $\frac{1}{8}$ ,  $\frac{1}{16}$ ,  $\frac{1}{32}$ ,  $\frac{1}{64}$  in., with inside Beveled Edges and Architect's Drafting Scale, 1-in. wide.....each \$ .75



No. 1584.

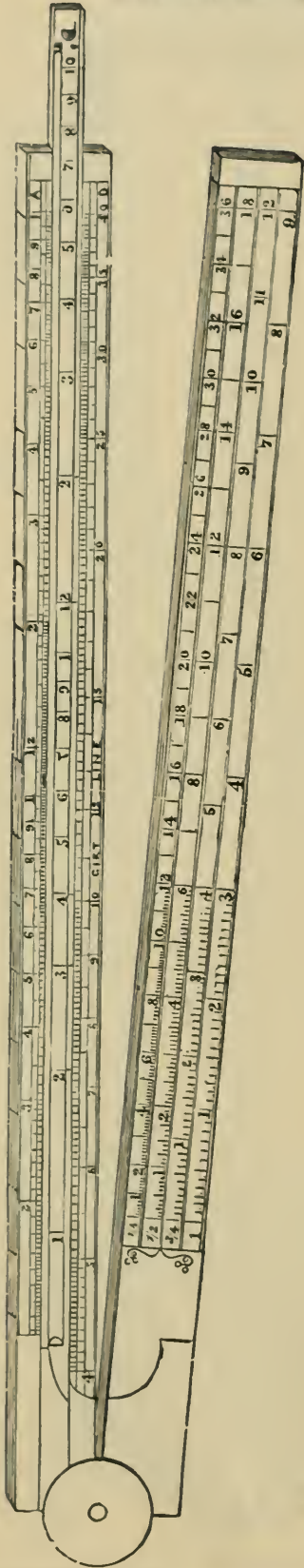
1584. Boxwood, 2 foot, 4 fold, Round Joint, Middle Plates, divided  $\frac{1}{8}$ ,  $\frac{1}{16}$  in., 1 in. wide.....each \$ .20



No. 1586.

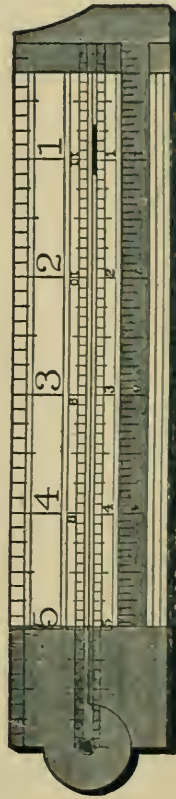
1586. Boxwood, 2 foot, 4 fold, Arch Joint, Edge Plates, divided  $\frac{1}{2}$ ,  $\frac{1}{16}$  in., and Drafting Scales,  $1\frac{3}{8}$  in. wide.each \$ .60

FOLDING SCALE RULES—BOXWOOD.



No. 1587.

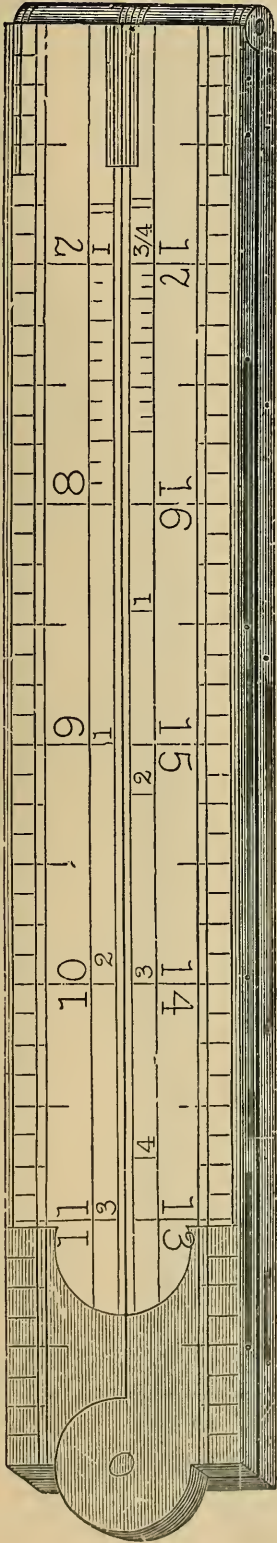
1587. Boxwood, 2 foot, 2 fold Slide Rules, Arch Joint, Bitted, Guntus Slide, divided  $\frac{1}{8}$ ,  $\frac{1}{16}$  in., 100ths  
of a foot, Drafting and Octagonal Scales,  $1\frac{1}{2}$  in. wide.....each \$ .75



No. 1588.

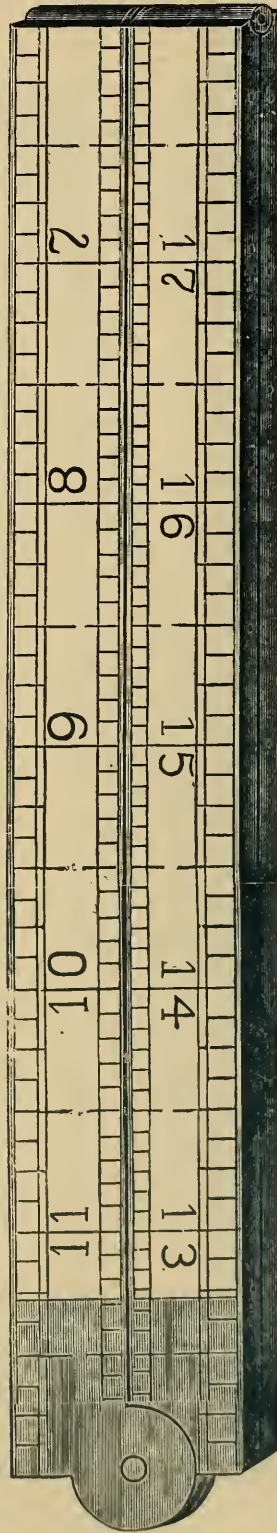
1588. Boxwood Caliper, 1 foot, 2 fold, Square Joint, divided  $\frac{1}{8}$ ,  $\frac{1}{16}$ ,  $\frac{1}{32}$ ,  $\frac{1}{64}$  in.,  $1\frac{1}{8}$  in. wide.....each \$ .50

FOLDING SCALE RULES—BOXWOOD.



No. 1590.

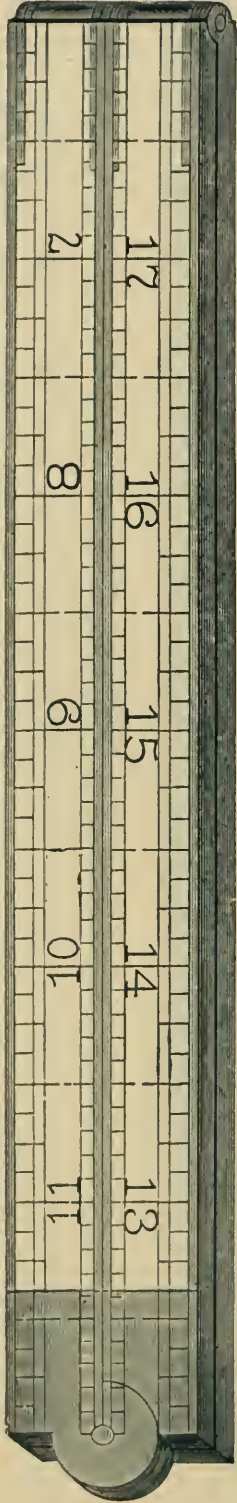
1590. Boxwood, 2 foot, 4 fold, Arch Joint, half bound, divided  $\frac{1}{8}$ ,  $\frac{1}{10}$ ,  $\frac{1}{12}$ ,  $\frac{1}{16}$  in., and Drafting Scales 1 in. wide ..... each \$ .60



No. 1591.

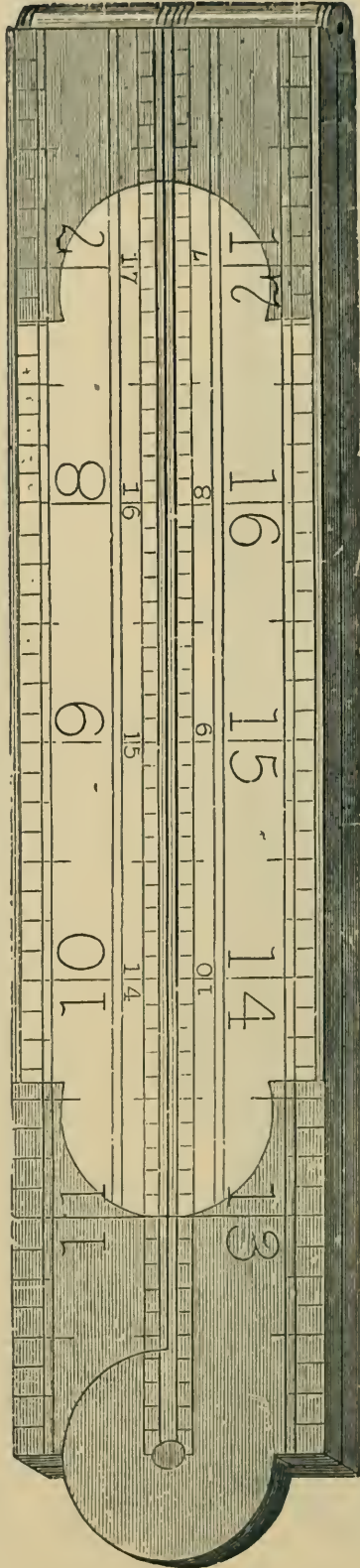
1591. Boxwood, 2 foot, 4 fold, Square Joint, bound, divided  $\frac{1}{8}$ ,  $\frac{1}{10}$ ,  $\frac{1}{12}$ ,  $\frac{1}{16}$  in. and Drafting Scales 1 in. wide ..... each \$ .70

FOLDING SCALE RULES—BOXWOOD.



No. 1592.

1592. Boxwood, 2 foot, 4 fold, extra narrow, Square Joint, Middle Plates, divided  $\frac{1}{8}$ ,  $\frac{1}{16}$  in.,  $\frac{3}{4}$  in. wide.....each \$ .30



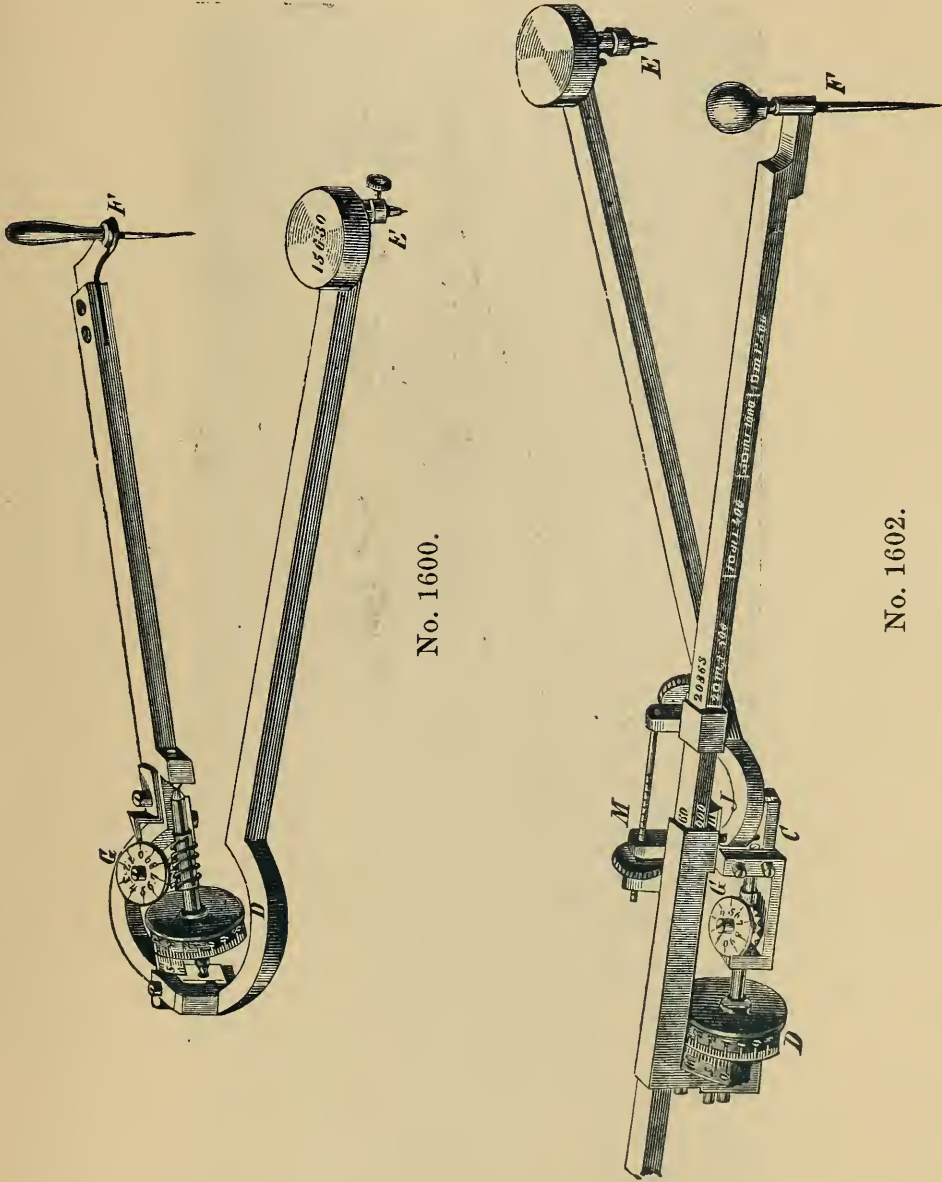
No. 1593.

1593. Boxwood, 2 foot, 4 fold, Double Arch Joint, bound, divided  $\frac{1}{8}$ ,  $\frac{1}{16}$ ,  $\frac{1}{16}$  in. and Drafting Scale  $1\frac{3}{8}$  in. wide.....each \$1.00



# PLANIMETERS.

The Planimeter is the most ingenious mechanical device made for computation. An invaluable aid to Civil and Mechanical Engineers, Naval Architects, Bridge Builders, etc.



No. 1600.

No. 1602.

RANGE: CIRCLE OF 18 INCHES DIAMETER.

1600. Planimeter, German Silver, arranged for measurement of areas in square inches; in case, with directions.....each \$19.00

RANGE: CIRCLE OF 24 INCHES DIAMETER.

1602. Planimeter, German Silver, arranged for measuring areas in either of several units (English and French), in case, with directions.....each \$30.00

PLANIMETERS.

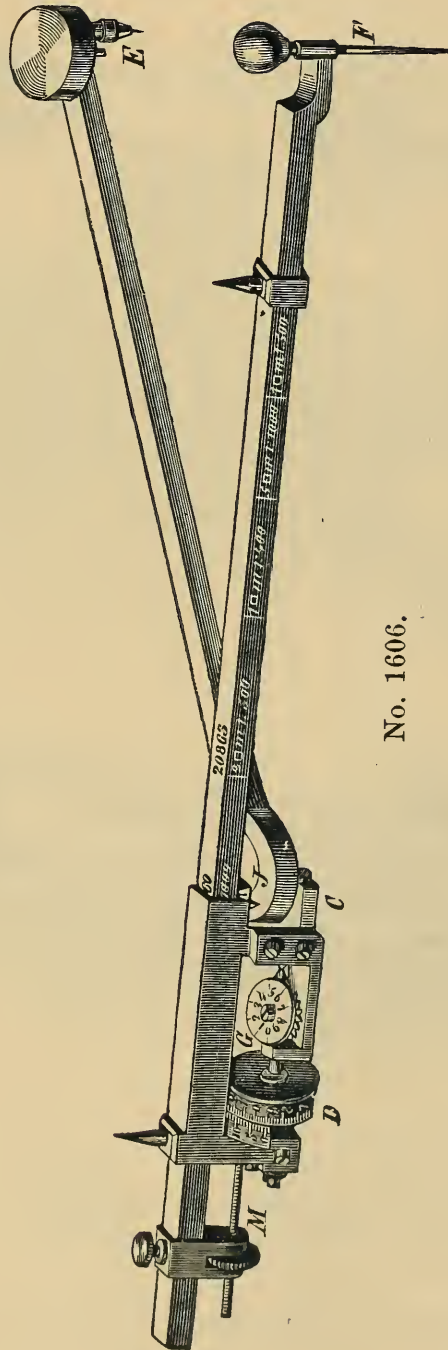


No. 1604.

RANGE OF TRACING POINT F : CIRCLE OF 38 INCHES DIAMETER.

1604. Planimeter, German Silver, arranged for measuring very large and very small areas, in case, with directions. . . . each \$62.50

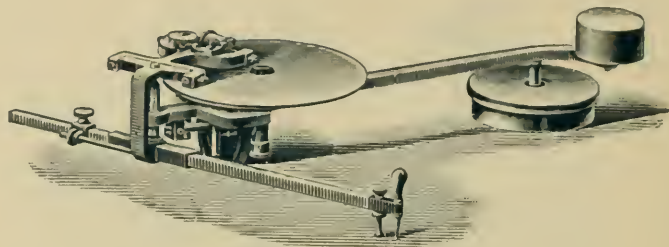
PLANIMETERS.



No. 1606.

1606. Planimeter, German Silver, same as No. 1602, but with special arrangement for finding rapidly the mean height of indicator diagrams, in case, with directions. . . . . each \$33.00

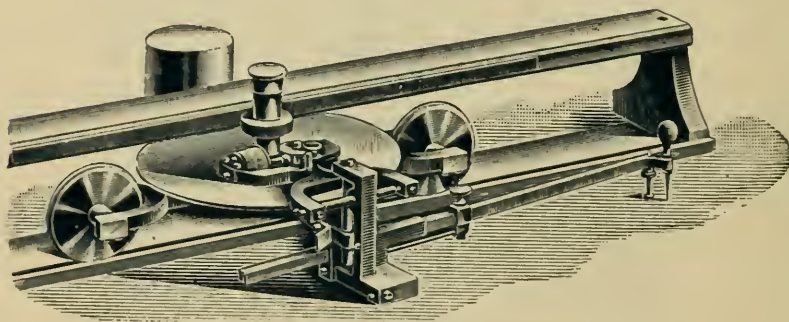
PLANIMETERS.



No. 1609.

RANGE : AREA INCLOSED BETWEEN TWO CONCENTRIC CIRCLES OF  
31 INCHES AND 13 INCHES DIAMETER, RESPECTIVELY.

1609. Planimeter, Brass, with roller working on revolving disc ;  
the instrument swings on a vertical pivot (pole) ; in case,  
with directions .....each \$80.00

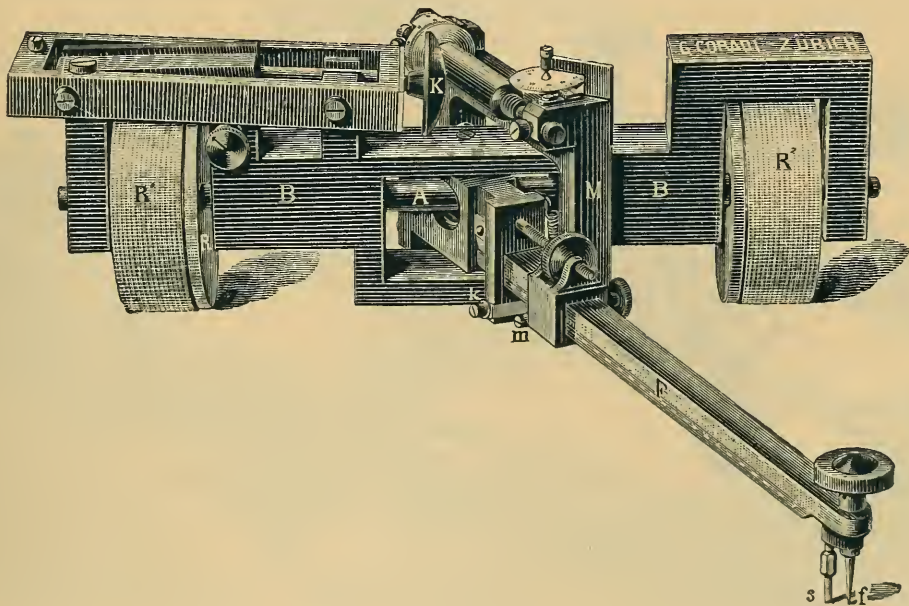


No. 1610.

RANGE: LENGTHWISE, 17 INCHES.  
CROSSWISE, 9 INCHES.

1610. Planimeter, Brass, equally provided with revolving disc ; the  
instrument runs on a rail and its working is in no way  
affected by the condition of the drawing surface ; in case,  
with directions .....each \$95.00

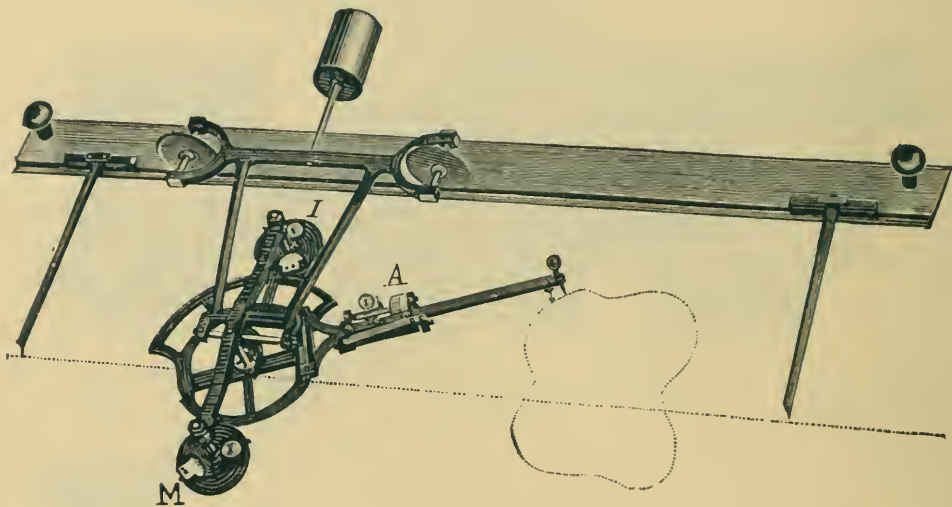
PLANIMETERS.



No. 1611.

1611. Rolling Ball Planimeter, German Silver and Brass, having tracer arm  $11\frac{1}{4}$  in. long, which can be increased by a lengthener to  $19\frac{3}{4}$  in. Its angular motion is about 90 degrees. The two rollers are made of exactly equal diameters, ensuring a motion of the instrument, as a whole, in a straight line. A surface of any length and of a width of 20 inches can be measured with the  $19\frac{3}{4}$  inch tracer arm. Instrument complete in morocco box with lock. In case, with directions . . . . . each \$95 00

# MECHANICAL INTEGRATOR.

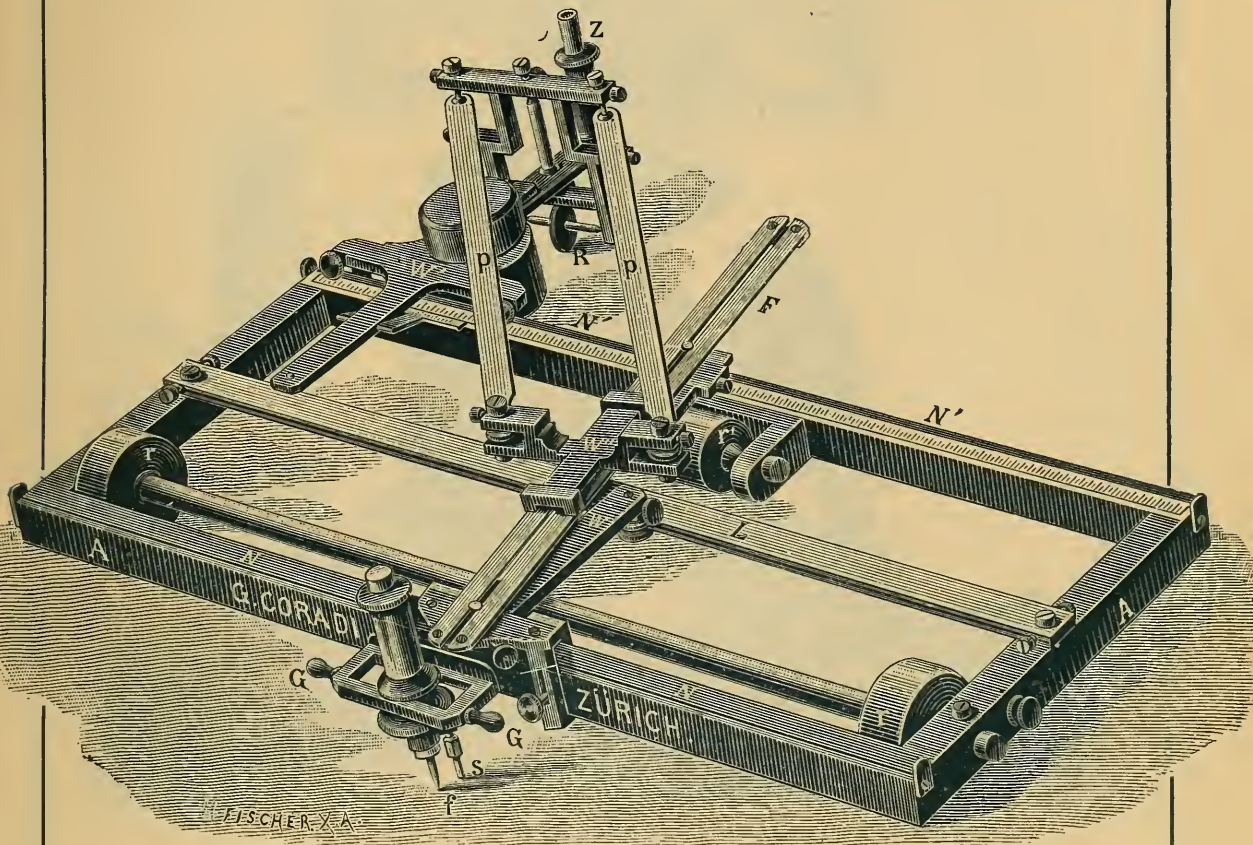


No. 1612.

1612. Mechanical Integrator, German Silver, in Walnut Case,  
grooved steel straight edge, 59 in. long, in separate case,  
with complete book of instruction. . . . . each \$175.00

The Mechanical Integrator is an apparatus to enable the the ship-builder to find with accuracy and great saving of time, by the simple operation of tracing the outlines of a sectional drawing of a vessel and then making a plain calculation, the area, the statical moment and the moment of inertia, thus furnishing him the keys to compute the displacement, the center of buoyancy, the longitudinal and transverse metacenter, the curve of stability and the curve of dynamical stability, etc.

# MECHANICAL INTEGRAPH.



No. 1613.

1613. Integraph of simple construction and great accuracy. Movement of the balances is 26 centimeters; the basis may be set from 10 cm. to 4 cm. The instruments rest upon three rollers; pen and pencil point is attached to the sliding rack of instrument. In Walnut Case and with complete book of instructions . . . . . each \$145.00

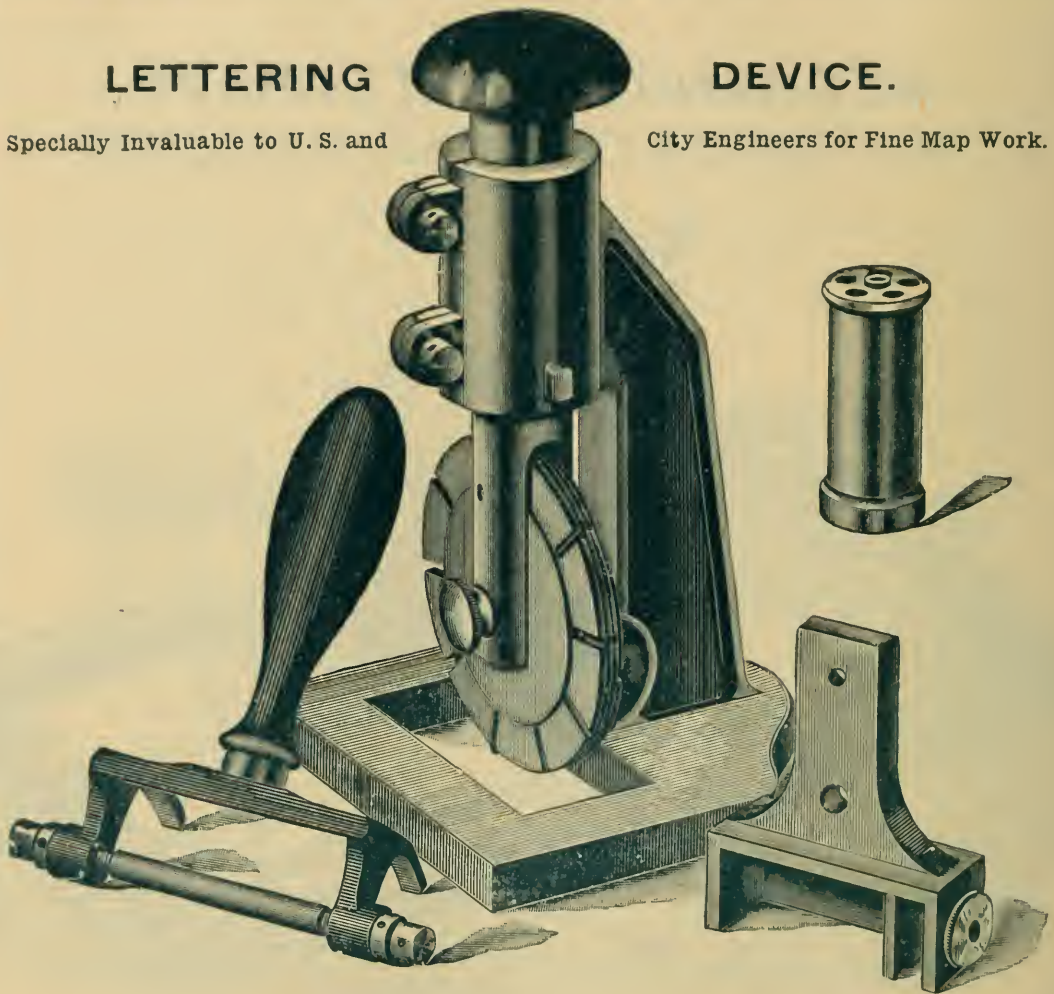
The Integraph has proven to be of special aid to the naval architect, and is now in many cases an indispensable instrument in ship construction. With this instrument the different moments, curves of stability and inertia can be readily computed. To the bridge-builder it is invaluable, being a great help to ascertain, with great rapidity, the moments of tensile strength, etc., of a bridge. The manipulation of the instrument is simple. The operator draws the principal points through the outlines of the different curves to be calculated. The pen or pencil point automatically draws the integral lines and not only can the result be read off on the graduated bar, but the whole course of integration (differential curves), is shown.

LETTERING

DEVICE.

Specially Invaluable to U. S. and

City Engineers for Fine Map Work.



No. 1614.

This instrument, as it is illustrated above, is designed to increase at least ten-fold the accuracy and rapidity with which pen-work in all kinds of lettering on maps, plans and drawings, may be accomplished. The work can be done at an astonishingly small cost, and in quality it will be found satisfactory to the most fastidious.

This device solves the problem how to repeat a word or combination of figures upon a map or drawing as often as may be required. It has met the approbation of all who had occasion to use or see it. The applications are almost unlimited, as will readily be seen.

The construction is very simple; the base and upright are of one casting, to which is accurately fitted a vertical slide that receives the type-box or dials, as the case may be. These attachments are fastened by means of a milled head-screw, as shown in cut. The slide is provided with a slot and key to insure a perfect vertical motion without any lateral play. The front edge of base is made exactly parallel with the dials and type-box, so that the regular T square or straight edge may be used to slide the instrument along where a number of figures are to be printed in a straight line.

The type-box,  $2\frac{1}{8}$  inches long and  $\frac{5}{8}$  inches wide, is intended to receive the words or combination of characters which are to be used in a given class of work. The type is fastened in the ordinary manner by means of a clamp-screw. Into the dials are to be inserted the figures, about  $\frac{1}{8}$  inch high and smaller, from 0 to 9, and, there being four of these dials, it will be seen that any combination of figures containing four numbers may be printed at one time.

To apply the ink, which has previously been prepared on a piece of plate glass about 4x6 inches, invert the apparatus, press the vertical side so that the type will project through the base, pass over the type with the ink roller, and the instrument is ready for use.

The whole instrument is made of hard brass, is nicely finished, and is packed in a neat box with one set of four dials, type-box, mold for ink rollers and two holders of ink rollers.

1614. Lettering Device, complete, without type..... each \$36.00

The cost of type will vary according to the amount and kind, which can be selected from a catalogue of any type founder, and may range from \$3.00 upwards.

Secure the ink and ink rollers from a printing supply house.



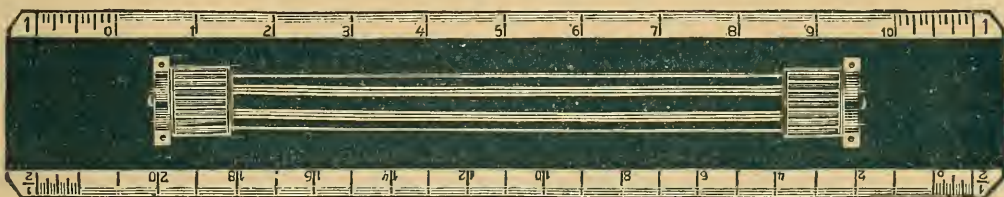
# PARALLEL RULES.

IN EBONY AND HARD RUBBER.



No. 1620.

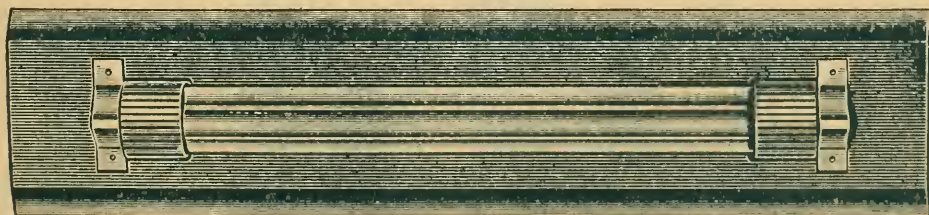
1620.	Ebony Parallel Rules, brass bars,	6 in.	.....	each	\$ .30
1621.	“ “ “ “	9 “	.....	“	.60
1622.	“ “ “ “	12 “	.....	“	.75
1623.	“ “ “ “	15 “	.....	“	.90
1624.	“ “ “ “	18 “	.....	“	1.20
1625.	“ “ “ “	24 “	.....	“	1.80
1628.	Rubber “ “ nickel-plated bars,	6 in.	.....	“	.75
1629.	“ “ “ “	9 “	.....	“	.90
1630.	“ “ “ “	12 “	.....	“	1.20
1631.	“ “ “ “	15 “	.....	“	1.50
1632.	“ “ “ “	18 “	.....	“	1.80
1633.	“ “ “ “	24 “	.....	“	2.40



No. 1635.

Ebony Rolling Parallel Rules, nickel-plated mountings, white edges, divided  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ , 1 inch to the foot.

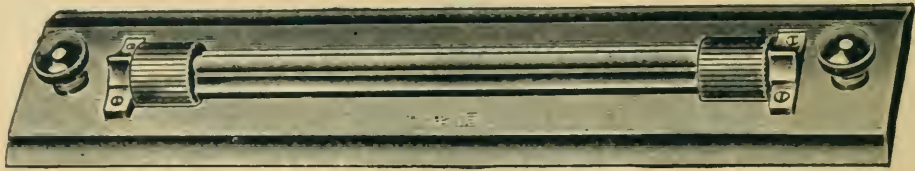
1635.	12 in.	.....	each	\$4.50
1636.	15 “	.....	“	5.50
1637.	18 “	.....	“	7.00



No. 1640.

1640.	Ebony Rolling Parallel Rule, brass mountings,	9 in.	.....	each	\$2.75
1641.	“ “ “ “ “ “	12 “	.....	“	3.25
1642.	“ “ “ “ “ “	15 “	.....	“	4.00
1643.	“ “ “ “ “ “	18 “	.....	“	5.00

PARALLEL RULES.



No. 1645.

1645.	Solid German Silver Rolling Parallel Rule, 9 in.....each	\$ 8.00
1646.	“ “ “ “ “ “ 12 “ .....	“ 10.00
1647.	“ “ “ “ “ “ 15 “ .....	“ 12.00
1648.	“ “ “ “ “ “ 18 “ .....	“ 15.00
1649.	“ “ “ “ “ “ 24 “ .....	“ 20.00

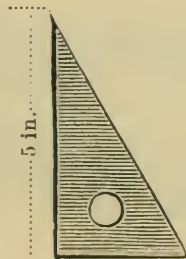
BRASS.

1650.	Parallel Rule, 9 in., weight about 18 oz.....each	\$7.25
1651.	“ 12 “ “ 23 “ .....	“ 8.50
1652.	“ 15 “ “ 31 “ .....	“ 10.00
1653.	“ 18 “ “ 40 “ .....	“ 12.00
1654.	“ 24 “ “ 58 “ .....	“ 18.00

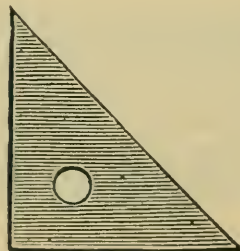
TRIANGLES.

WOODEN TRIANGLES.

The size of all Triangles is determined by the length of the catheti indicated by the dotted lines. In order to secure a 30 x 60° and a 45° Triangle of even size of hypotenuse, order the 45° Triangle about 1½ to 2 inches shorter than the 30 x 60° Triangle, that is, the size placed directly under the latter in this list.



No. 1700.



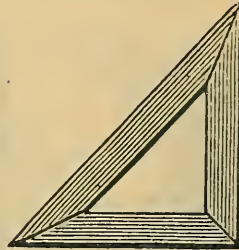
No. 1702.

1700.	Cherry Triangles, solid, 30 x 60°....each	7 in., \$ .10	9 in., \$ .12
1702.	“ “ “ 45°.....“	5¾ “ .10	7¾ “ .12

WOODEN TRIANGLES.



No. 1704.



1706.

1704. Cherry Triangles, framed, 30 × 60 degrees.

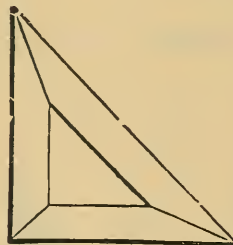
	5	7	8	9	10	11	12	14	15 in.
Each..\$	.14	.18	.20	.24	.28	.30	.32	.35	.40

1706. Cherry Triangles, framed, 45 degrees.

	5	7	8	9	10	11	12	14	15 in.
Each..\$	.18	.24	.26	.30	.32	.35	.38	.45	.50



No. 1708.



1710.

1708. Pearwood Lined Triangles, 30 × 60 degrees.

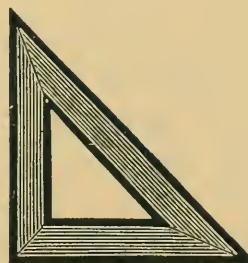
	7	8	9	10	11	12	14	17 in.
Each \$	.25	.28	.30	.35	.40	.45	.50	.70

1710. Pearwood Lined Triangles, 45 degrees.

	6	8	9	10	11	12	14 in.
Each.....\$	.25	.35	.40	.45	.50	.55	.65



No. 1712.



1714.

1712. Mahogany Triangles, Ebony Lined, 30 × 60 degrees.

	7	8	9	10	11	12	14	17	20 in.
Each..\$	.30	.35	.40	.50	.55	.65	.75	1.10	1.35

1714. Mahogany Triangles, Ebony Lined, 45 degrees.

	6	7	8	9	10	11	12	14	16 in.
Each..\$	.30	.35	.40	.50	.60	.70	.75	1.00	1.25

RUBBER TRIANGLES.



No. 1716.

1718.

1716. Hard Rubber Triangles, solid, 30 × 60 degrees.

Each.....	\$ .15	.20	.25	.40
	4	6	8	10 in.

1718. Hard Rubber Triangles, solid, 45 degrees.

Each.....	\$ .15	.20	.25	.35
	4	5	6	8 in.



No. 1721.

1720.

1722.

1720. Hard Rubber Triangles, 30 × 60 degrees.

Each....\$	.15	.20	.25	.30	.35	.40	.45	.50	.60
	4	5	6	7	8	9	10	11	12 in.
Each....\$	.75	1.00	1.25	1.40					
	13	14	15	16 in.					

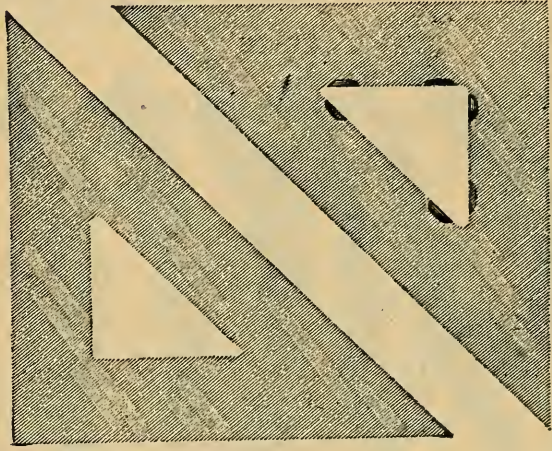
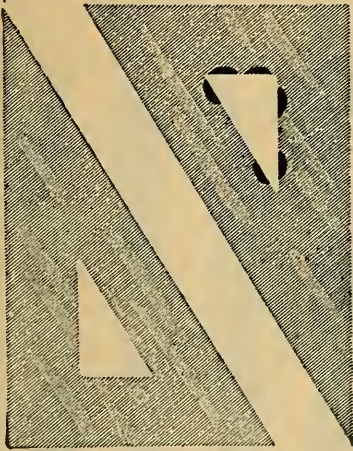
1721. Hard Rubber Triangles, 22½ × 67½ degrees.

Each....\$	.20	.25	.30	.35	.45	.50	.55	.60	.70
	4	5	6	7	8	9	10	11	12 in.
Each....\$	.85	1.10	1.35	1.50					
	13	14	15	16 in.					

1722. Hard Rubber Triangles, 45 degrees.

Each....\$	.25	.30	.35	.40	.45	.50	.55	.70	.90
	4	5	6	7	8	9	10	11	12 in.
Each....\$	1.10	1.25	1.70	2.00					
	13	14	15	16 in.					

**CELLULOID TRIANGLES.**



No. 1724.

1724s.

1726.

1726s.

1724. Celluloid Triangles, 30×60 degrees.

Each \$	3 .20	4 .25	5 .30	6 .35	7 .45	8 .50	9 .60	10 in. .70
Each \$	11 .80	12 .95	13 1.20	14 1.45	15 1.70	16 2.00	17 2.30	18 in. 2.60

1724s. Celluloid Triangles, 30×60 degrees, special bevel on inside.

Each \$	3 .25	4 .30	5 .40	6 .50	7 .55	8 .65	9 .70	10 in. .85
Each \$	11 1.00	12 1.20	13 1.45	14 1.65	15 2.00	16 2.30	17 2.60	18 in. 2.90

1726. Celluloid Triangles, 45 degrees.

Each \$	3 .25	4 .35	5 .45	6 .50	7 .60	8 .70	9 .85	10 in. 1.05
Each \$	11 1.25	12 1.50	13 1.80	14 2.10	15 2.40	16 2.70	17 3.00	18 in. 3.30

1726s. Celluloid Triangles, 45 degrees, special bevel on inside.

Each \$	3 .30	4 .45	5 .55	6 .65	7 .75	8 .95	9 1.05	10 in. 1.20
Each \$	11 1.55	12 1.85	13 2.10	14 2.35	15 2.60	16 3.00	17 3.50	18 in. 4.00

**STEEL TRIANGLES.**

1727. Steel Triangles, nickel plated, open center, 30×60 degrees.

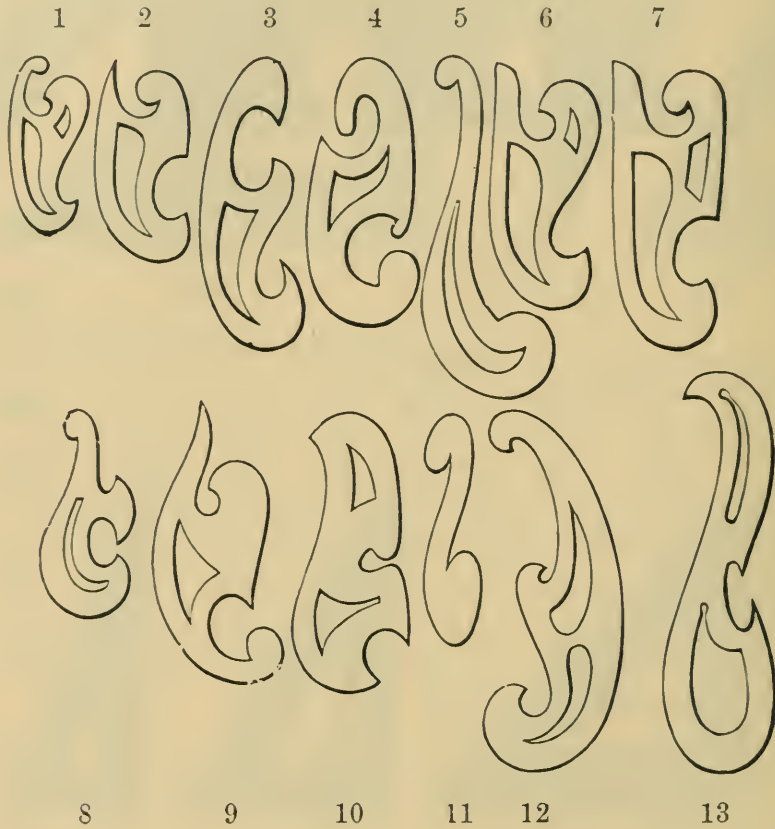
Each	6 \$3.20	7 3.50	8 3.85	10½ 4.25	15 in. 6.50
------	-------------	-----------	-----------	-------------	----------------

1728. Steel Triangles, nickel plated, open center, 45 degrees.

Each	5 \$3.20	6½ 3.50	8 4.25	10 5.50	12 in. 6.50
------	-------------	------------	-----------	------------	----------------

# CURVES.

## WOOD, RUBBER AND CELLULOID.



No. 1730.

		Nos. 1	2	3	4	5	6	7
1730.	Wood..... each	\$ .20	.25	.30	.30	.30	.25	.30
1731.	Rubber .... "	.35	.40	.50	.50	.50	.45	.50
1732.	Celluloid... "	.45	.55	.60	.60	.60	.55	.60
		Nos. 8	9	10	11	12	13	
1730.	Wood..... each	\$ .25	.30	.35	.20	.35	.45	
1731.	Rubber .... "	.35	.50	.60	.40	.75	1.00	
1732.	Celluloid... "	.45	.60	.75	.50	.90	1.50	

# COPENHAGEN SHIP CURVES.

WOOD AND RUBBER.



No. 1748.

**COPENHAGEN SHIP CURVES.**

**WOOD AND RUBBER.**

	Nos. 1	2	3	4	5	6	7	8	9
1748. Wood . . . each \$	.80	.80	.80	.80	.80	.80	.80	.85	.85
1750. Rubber.. " "	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.30	1.30
	Nos. 10	11	12	13	14	15	16	17	18
1748. Wood . . . each \$	.60	.60	.60	.60	.60	.60	.50	.40	.40
1750. Rubber.. " "	.85	.85	.85	.85	.85	.95	.85	.60	.60
	Nos. 19	20	21	22	23	24	25	26	27
1748. Wood . . . each \$	.45	.45	.40	.40	.40	.40	.40	.40	.40
1750. Rubber.. " "	.60	.60	.55	.55	.55	.55	.55	.55	.55
	Nos. 28	29	30	31	32	33	34	35	36
1748. Wood . . . each \$	.30	.30	.30	.30	.30	.30	.30	.30	.30
1750. Rubber.. " "	.50	.50	.50	.50	.50	.50	.50	.50	.50
	Nos. 37	38	39	40	41	42	43	44	45
1748. Wood . . . each \$	.30	.30	.30	.30	.30	.30	.30	.30	.25
1750. Rubber.. " "	.50	.40	.35	.40	.40	.40	.40	.40	.35

**AMERICAN SHIP CURVES.**

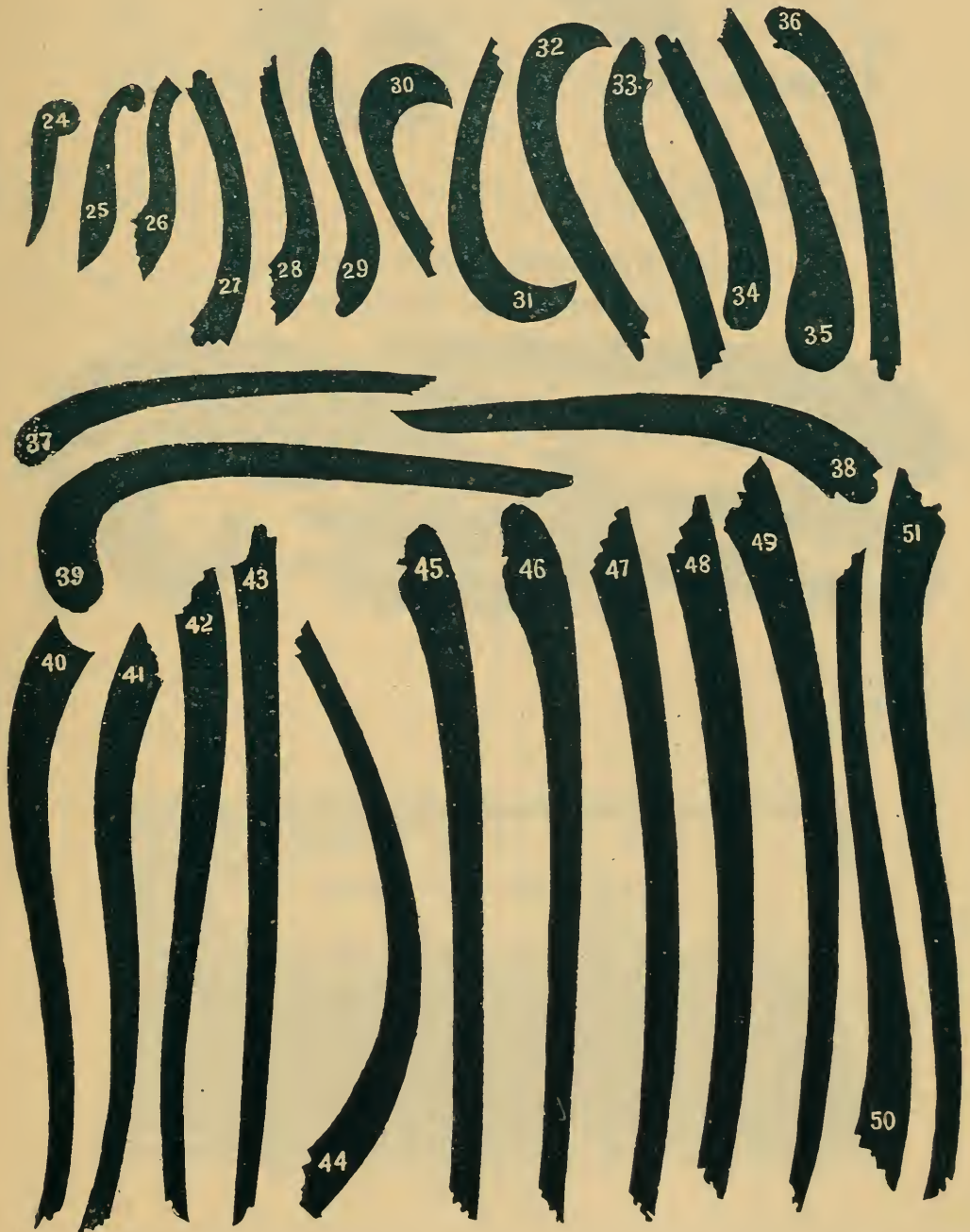
**WOOD AND RUBBER.**

	Nos. 24	25	26	27	28	29	30
1752. Wood . . . . . each \$	.30	.30	.35	.50	.50	.50	.50
1754. Rubber . . . . . " "	.50	.50	.55	.70	.70	.70	.70
	Nos. 31	32	33	34	35	36	37
1752. Wood . . . . . each \$	.55	.55	.50	.50	.55	.55	.60
1754. Rubber . . . . . " "	.75	.75	.70	.70	.75	.75	.80
	Nos. 38	39	40	41	42	43	44
1752. Wood . . . . . each \$	.65	.70	.85	.80	.80	.80	.85
1754. Rubber . . . . . " "	1.00	1.15	1.35	1.15	1.15	1.15	1.35
	Nos. 45	46	47	48	49	50	51
1752. Wood . . . . . each \$	.80	.80	.80	.80	.85	.80	.80
1754. Rubber . . . . . " "	1.15	1.15	1.15	1.15	1.35	1.15	1.15



# AMERICAN SHIP CURVES.

WOOD AND RUBBER.



No. 1752.

**SPIRAL CURVE.**



No. 1756.

- |       |                               |      |        |
|-------|-------------------------------|------|--------|
| 1756. | Hard Rubber Spiral Curve..... | each | \$1.50 |
| 1758. | Celluloid Spiral Curve .....  | "    | 1.75   |

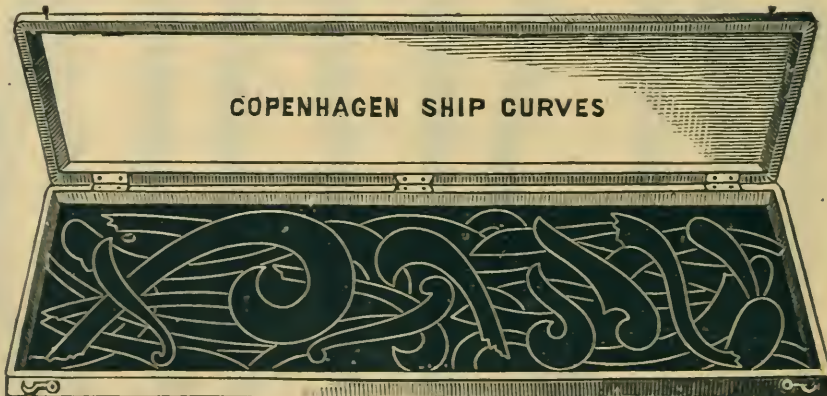
**COPENHAGEN SHIP CURVES.**

For Mechanical Engineers.



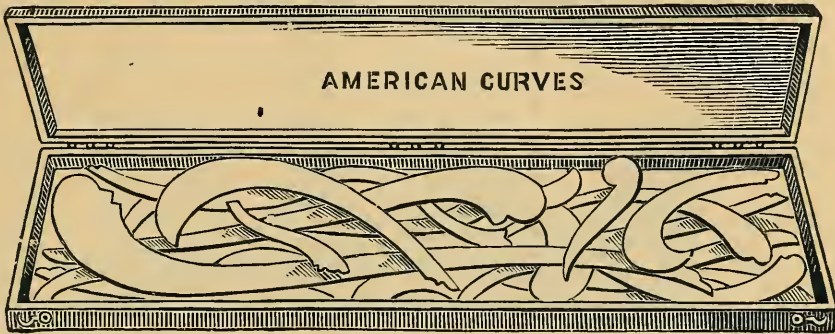
No. 1760.

- |       |                       |         |         |
|-------|-----------------------|---------|---------|
| 1760. | Wood, set of 10 ..... | per set | \$ 4.00 |
| 1761. | Rubber, " " .....     | "       | 6.00    |
| 1762. | Celluloid, " " .....  | "       | 10.00   |



No. 1764.

- |       |   |         |         |
|-------|---|---------|---------|
| 1764. | Set of 45, Wood, containing one of each curve as listed under No. 1748, in case.....        | per set | \$18.00 |
| 1766. | Set of 45, Hard Rubber, containing one of each curve as listed under No. 1750, in case..... | "       | 30.00   |



No. 1768.

1768. Set of 28 American Ship Curves in wood, containing one each curve as listed under No. 1752, in case..... per set \$14.00
1770. Set of 28 American Ship Curves in hard rubber, containing one each curve as listed under No. 1754, in case..... " 24.00

**SPECIAL CURVE.**

Celluloid and Rubber.

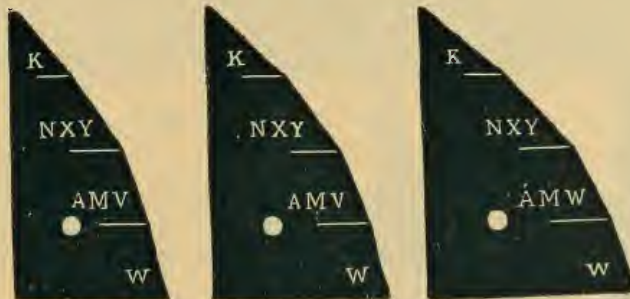


No. 1772.

1772. Rubber ..... each \$ .60
1773. Celluloid..... " 1.10

**LETTERING ANGLES.**

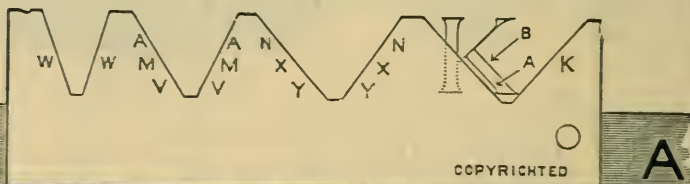
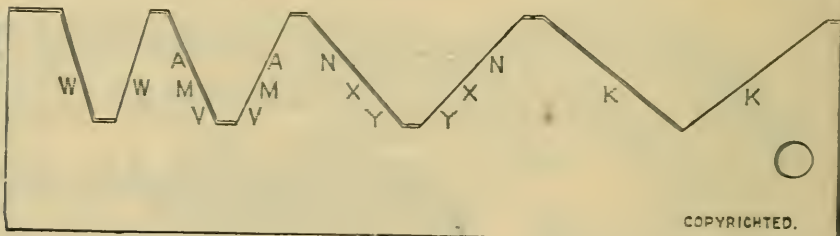
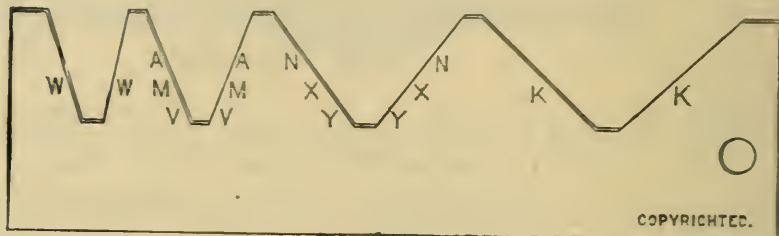
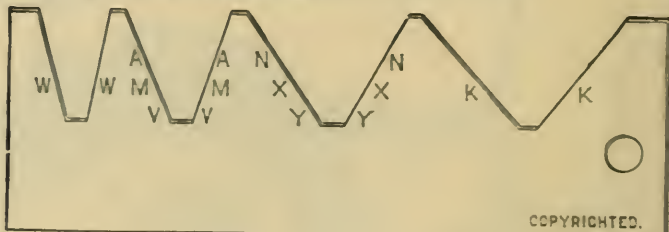
Celluloid, Rubber and Wood.



No. 1775.

1774. Celluloid, set of 3 Lettering Triangles, each 3½ in. in size. . per set \$1.50
1775. Rubber " " " " " " " " 1.20
1776. Wood " " " " " " " " 1.00

LETTERING ANGLES.



B

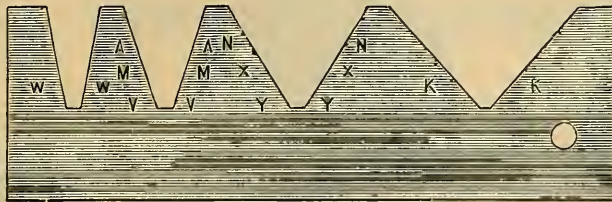
No. 1778.

1778. Lettering Angles, made of "Transparent Ambro," per set of above 3 pieces..... \$1.80

Our New Style Lettering Angles facilitate *rapid* and *accurate* lettering because all slopes are in one horizontal line and in equal distance from the T Square or Straight Edge along which they slide. The old style required constant moving up and down to accomplish the desired slope. Our new style has the farther advantage that it permits of inking the letters without risk of blurring the lines. Put a piece of cardboard or blotting paper "A" next to edge of T Square "B" and under the lettering angle, thus raising the lettering angle over the drawing paper. In this way you could ink slope "A" of the letter "K," and while that line is still wet slide along the angle to draw slope "B," as shown by above cut.

**LETTERING TEMPLATES.**

Hard Rubber.



No. 1780.

1780. Rubber, Set of 3 ..... per set \$1.50

**EMBANKMENT ANGLES.**

Celluloid and Rubber.



No. 1782.

1 x 4, 1 x 5, 1 x 6, 1 x 8, 1 x 10, 1 x 12 in.

1782. Hard Rubber, Set of 3, 6 Slopes..... per set \$2.00

1784. Amber, Set of 3, 6 Slopes ..... " 4.00

**TRIANGLES FOR ROOF PITCH.**

Celluloid and Rubber.



No. 1786.

1786. Hard Rubber, Set of 6..... per set \$3.10

1788. Amber, Set of 6..... " 4.50

HYPERBOLAS, ELLIPSES AND PARABOLAS.



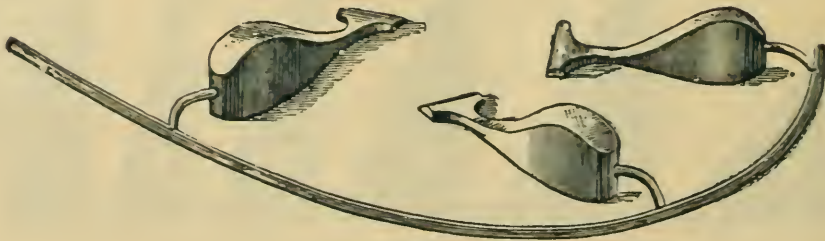
No. 1790.

1799.

1793.

1790.	Hard Rubber Hyperbolas, Set of 8, from 2 to 5½ in.....	per set	\$2.85
1791.	Wood " " 8, " 2 to 5½ " .....	"	1.70
1792.	Celluloid " " 8, " 2 to 5½ " .....	"	3.00
1793.	Hard Rubber Parabolas, " 8, " 1¼ to 5½ " .....	"	2.85
1794.	" " " 8, " 3¼ to 14¼ " .....	"	5.00
1795.	Wood " " 8, " 1¼ to 5½ " .....	"	1.70
1796.	" " " 8, " 3¼ to 14¼ " .....	"	3.40
1797.	Celluloid " " 8, " 1¼ to 5½ " .....	"	3.00
1798.	" " " 8, " 3¼ to 14¼ " .....	"	7.60
1799.	Rubber Ellipses, Set of 6 .....	"	1.90
1800.	Wood " " 6 .....	"	1.00
1801.	Celluloid " " 6 .....	"	2.50
1802.	Rubber " " 8 .....	"	2.50
1803.	Wood " " 8 .....	"	1.75
1804.	Celluloid " " 8 .....	"	3.00
1805.	Rubber " " 10 .....	"	2.70
1806.	Wood " " 10 .....	"	1.90
1807.	Celluloid " " 10 .....	"	3.80

WEIGHTS FOR SPLINES.



No. 1809.

1809. Lead Weights for Splines, with Finger, about 3¾ lbs.....each \$1.00

**SPLINES.**

Hard Rubber, Wood and Celluloid.



No. 1810.

		18	24	30	36	42	48	54	60 in.
1810.	Rubber....each \$	.30	.35	.40	.45	.50	.60	.70	.80
1811.	Wood..... "	.15	.30	.35	.40	.45	.55	.60	.70
1812.	Celluloid .. "	.35	.45	.50	.60	.70	.80	.95	1.10

**RAILROAD CURVES.**

WOOD AND RUBBER.



No. 1814.

Scale of American Inches.

In plain wooden case.

1814.	Set of 10 Curves, from 12 to 120 in. radius, varying 12 in., arc finished only on the convex side—in Wood.....	per set	\$4.60
1816.	Same as 1814—in Rubber.....	"	7.50
1818.	Set of 17 Curves, from 12 to 60 in. radius, varying 3 in., arc finished only on the convex side—in Wood.....	"	7.75
1820.	Same as 1818—in Rubber.....	"	12.50
1822.	Set of 24 Curves, from 1½ to 24 in. radius, varying ½ in. from 1½ to 10 in., 2 in. from 10 to 24 in., arc finished only on the convex side—in Wood.....	"	10.25
1824.	Same as 1822—in Rubber.....	"	17.00
1826.	Set of 43 Curves, from 3½ to 200 in. radius, varying ½ in. from 3½ to 10 in., varying 2 in. from 10 to 24 in., varying 3 in. from 24 to 42 in., varying 6 in. from 42 to 90 in., varying 10 in. from 90 in. to 140 in., varying 20 in. from 140 to 200 in., arc finished only on the convex side—in Wood.....	"	15.00
1828.	Same as 1826—in Rubber.....	"	30.00
1830.	Set of 20 Curves, from 12 to 120 in. radius, varying 6 in.—in Wood.....	"	9.00
1832.	Same as 1830—in Rubber.....	"	14.00
	Single Railroad Curves—in Rubber.....	"	1.00
	" " " —in Wood.....	"	.80

**SCALE OF DEGREES.**

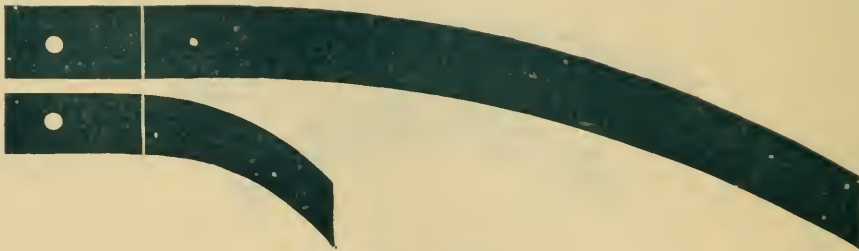
**Scale, 40 Feet to the Inch.**

1834.	Set of 10 Curves, from 1° to 10° by every degree—Wood, per set	\$ 6.00
1836.	“ “ “ “ “ “ —Rubber, “	9.00
1838.	Set of 20 Curves, from 1° to 20° by every degree—Wood, “	12.00
1840.	“ “ “ “ “ “ —Rubber, “	18.00

**Scale, 100 Feet to the Inch.**

1842.	Set of 12 Curves, from 1° to 12° by every degree—Wood, per set	\$ 6.75
1844.	“ “ “ “ “ “ —Rubber, “	10.00

**100 Foot Scale.**



No. 1846.

1846. Set of 41, with Tangent, made in Rubber only, marked in degrees and inches :

0° 30' = 114.59 in.	3° 30' = 16.37 in.	6° = 9.55 in.	8° 30' = 6.75 in.
1° = 57.30 “	3° 45' = 15.28 “	6° 15' = 9.17 “	8° 45' = 6.55 “
1° 15' = 45.84 “	4° = 14.33 “	6° 30' = 8.82 “	9° = 6.37 “
1° 30' = 38.20 “	4° 15' = 13.48 “	6° 45' = 8.49 “	9° 15' = 6.20 “
1° 45' = 32.74 “	4° 30' = 12.73 “	7° = 8.19 “	9° 30' = 6.04 “
2° = 28.65 “	4° 45' = 12.07 “	7° 15' = 7.91 “	9° 45' = 5.88 “
2° 15' = 25.47 “	5° = 11.46 “	7° 30' = 7.64 “	10° = 5.74 “
2° 30' = 22.92 “	5° 15' = 10.92 “	7° 45' = 7.40 “	10° 30' = 5.48 “
2° 45' = 20.84 “	5° 30' = 10.42 “	8° = 7.17 “	11° = 5.22 “
3° = 19.10 “	5° 45' = 9.97 “	8° 15' = 6.95 “	11° 30' = 4.99 “
3° 15' = 17.63 “			

In wooden box..... per set \$35.00

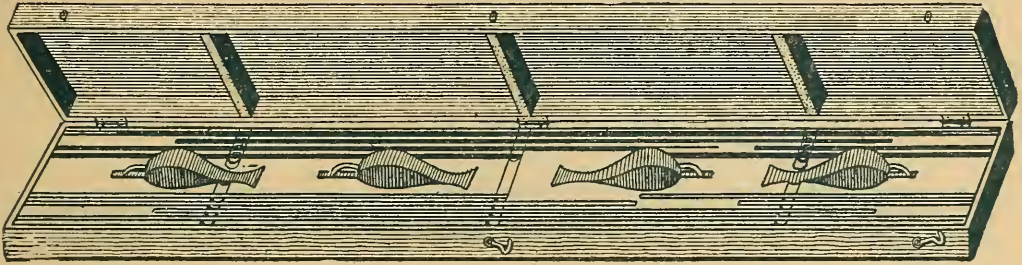
Single Railroad Curves, in Rubber only, with Tangent.....	each	\$1.20
“ “ “ in Rubber.....	“	1.00
“ “ “ in Wood.....	“	.80

**ZINC RAILROAD CURVES.**

1847. 20 in set ..... per set \$8.00



**SPLINES AND SPLINE WEIGHTS IN SETS.**



No. 1848.

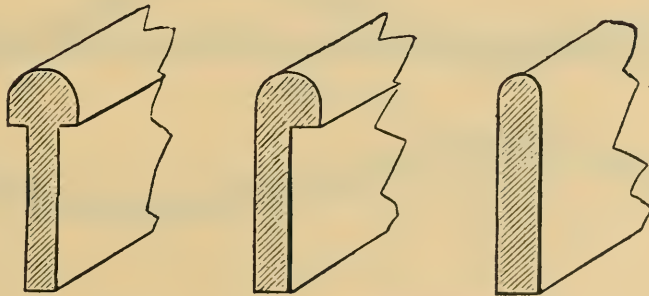
1848. Cont'g: 4 Spline Weights, No. 1809.

1 each Hard Rubber Splines, No. 1810, 18, 24, 30, 36, 42 in.

1 " Wood Splines, No. 1811, 18, 24, 30, 36, 48 in.

In strong wooden box . . . . . per set \$10.00

**BEAM COMPASS BARS.**



Size No. 1.

No. 2.

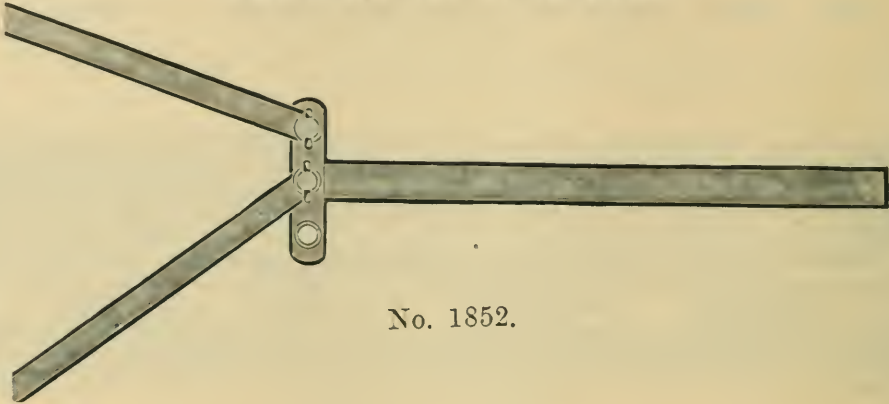
No. 3.

No. 1850.

1850. Beam Compass Bars made of hard wood.

	24	30	36	42	48	54 in.
Each (any size) . . . . .	\$ .35	.40	.45	.50	.60	.65

PERSPECTIVE LINEADS.



No. 1852.

1852. Perspective Linead or Centrolinead, Mahogany, Ebony Lined,  
Nickel-plated Swivels, with two Studs. Blade 24 in.,  
Arms 10 in. .... each \$2.50
1854. Same as No. 1852, with Blade 30 in., Arms 11 in. .... " 3.50
1856. " " 1852, " 36 " " 12 " .... " 4.00

DIRECTIONS FOR USING Nos. 1852-1856.—Both edges of the blade are used for draughting. Above cut shows position in drawing from the left. To draw from the right it is only necessary to move the upper arm with the swivel to the lower end of the blade head.

PATENT ADJUSTABLE CURVE RULERS.

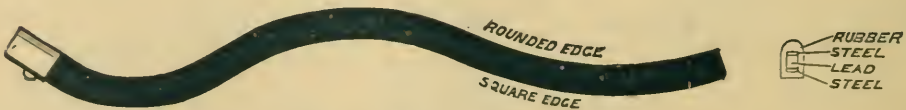
These rulers consist of a ruling edge of rubber (Nos. 1858, 1860, 1861) or steel (No. 1859) in combination with a bar of soft lead. They will hold any curve into which they are bent



No. 1858.



No. 1859.



No. 1860.

1858. Adjustable Curve Ruler, 14½ in. long ..... each \$1.87
1859. " " 30 " " ..... " .87
1860. " " Double Edge, 7 in. long ..... " .35
1861. " " " 15 " " ..... " .75
1862. " " " 31 " " ..... " 1.50

**STRAIGHT EDGES.**



No. 1864.

1864. Cherry, one edge beveled.

	12	15	18	24	30	36	42	48 in.
Each..... \$	.12	.15	.20	.25	.30	.35	.40	.50



No. 1865.

1865. Hardwood, Lined, thin square edges.

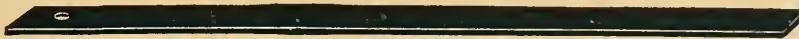
	24	30	36	42	48	54	60	72 in.
Each..... \$	.35	.45	.55	.65	.75	1.00	1.25	1.50



No. 1866.

1866. Mahogany, Ebony Lined, thin square edges.

	24	30	36	42	48	54	60	72 in.
Each..... \$	.50	.60	.75	.90	1.10	1.40	1.70	2.00



No. 1867.

1867. Hard Rubber Straight Edges, with square edges.

	12	15	18	24	30	36	42 in.
Each..... \$	.35	.45	.55	.80	1.05	1.30	1.60



No. 1868.

1868. Celluloid Lined Straight Edges, with square edges.

	18	24	30	36	42	48	54 in.
Each..... \$	.75	1.00	1.25	1.50	1.80	2.20	3.00

**STRAIGHT EDGES.**



No. 1870.

1870. Steel Straight Edges, nickel plated, with square edges.

	15	18	24	30	36	42	48	60	72 in.
Each...	\$1.40	1.65	2.25	3.50	4.50	5.50	6.50	9.50	13.75



No. 1872.

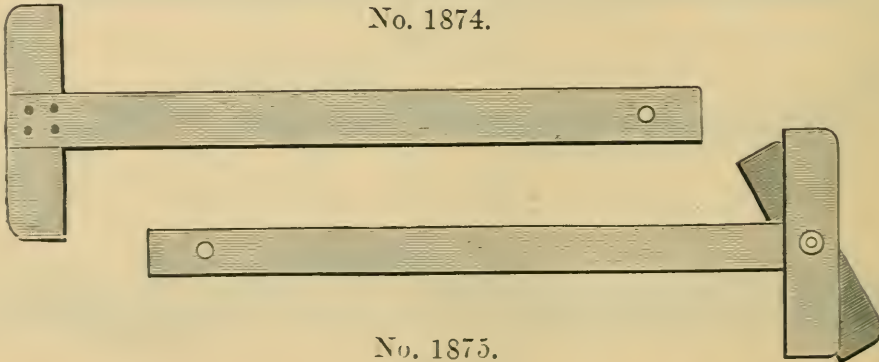
1872. Steel Straight Edges, nickel plated, one edge beveled the other square.

	15	18	24	30	36	42	48	60	72 in.
Each	\$2.25	2.50	3.25	4.25	5.25	7.00	8.50	11.50	15.00

**T SQUARES.**

Cherry Wood.

No. 1874.



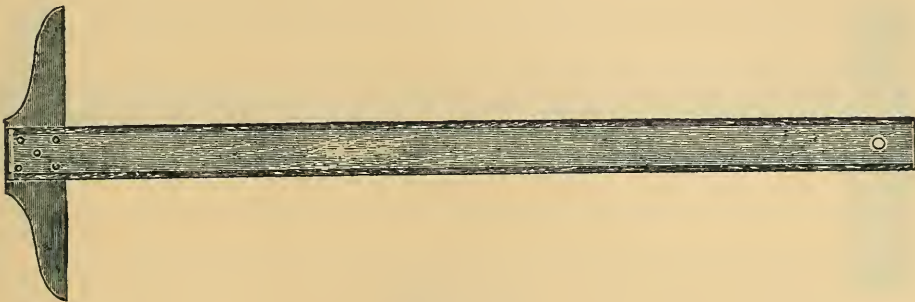
No. 1875.

		15	18	21	24	30	36	42 in.
1874. Fixed Head.....each	\$	.20	.25	.30	.35	.40	.45	.50
1875. Shifting "....."		.50	.60	.70	.80	.90	1.00	1.10

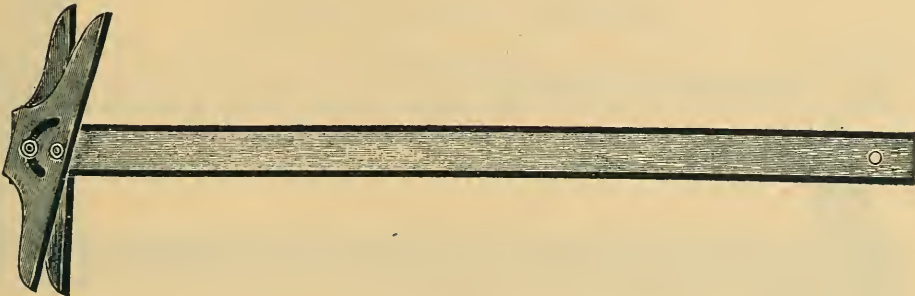
Above Shifting Head T Squares over 18 inches furnished with two Brass Swivels.

**T SQUARES.**

**Ash Wood Blade, Maple Lined, Walnut Head.**



No. 1880.



No. 1881.

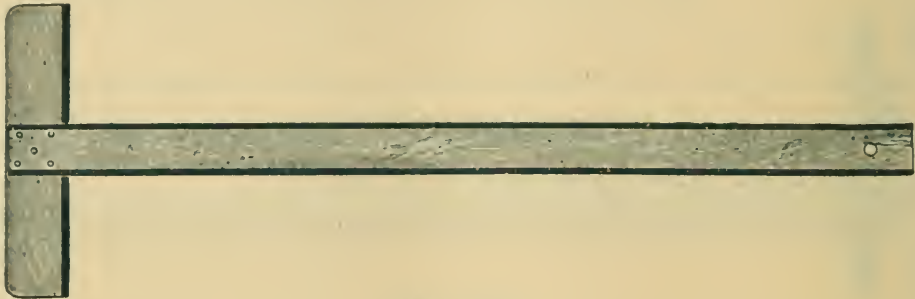
			15	18	21	24	30	36 in.
1880.	Fixed Head....each	\$ .30	.40	.50	.60	.70	.80	
1881.	Shifting " .... "	.65	.75	.90	1.10	1.30	1.50	
			42	48	54	60	72 in.	
1880.	Fixed Head....each	\$ 1.00	1.20	1.40	1.60	1.80		
1881.	Shifting " .... "	1.70	1.90	2.10	2.40	2.75		

Above Shifting Head T Squares over 18 inches furnished with two Brass Swivels.

**T SQUARES.**

**Mahogany.**

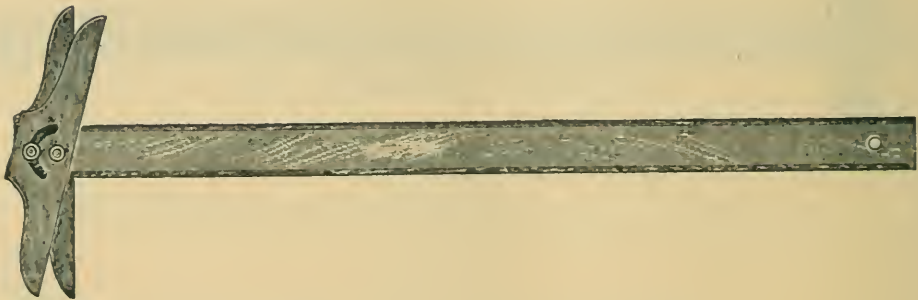
Ebony Lined, with Shellac Finish.



No. 1882.

**Mahogany, with 2 Swivels.**

Shifting Head.



No. 1883.

			21	24	30	36	42	48 in.
1882.	Fixed Head....	each \$	.50	.65	.80	1.00	1.25	1.50
1883.	Shifting " .... "		1.25	1.50	1.75	2.00	2.25	2.50
			54	60	72 in.			
1882.	Fixed Head....	each \$	1.75	2.00	2.25			
1883.	Shifting " .... "		2.75	3.00	3.25			

Above Shifting Head T Squares are furnished with 2 Brass Swivels.

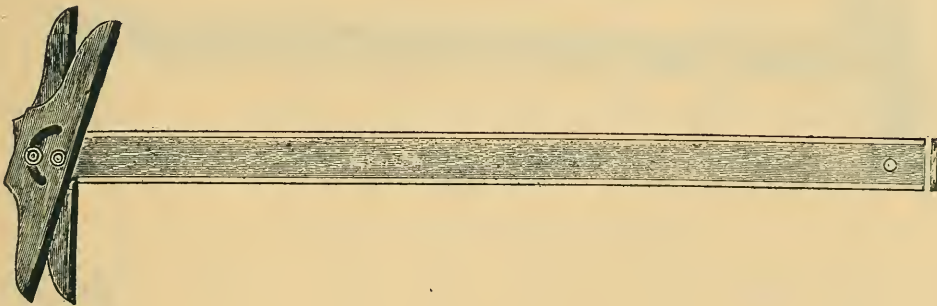
**T SQUARES.**

**Mahogany, Amber Lined.**

Shellac Finished.



No. 1886.



No. 1887.

		18	21	24	30	36	42 in.
1886.	Fixed Head....each	\$1.10	1.30	1.50	1.85	2.15	2.50
1887.	Shifting " .... "	1.90	2.20	2.45	2.80	3.20	3.60
		48	54	60	72 in.		
1886.	Fixed Head....each	\$3.00	4.75	5.75	6.75		
1887.	Shifting " .... "	4.20	5.75	6.75	7.75		

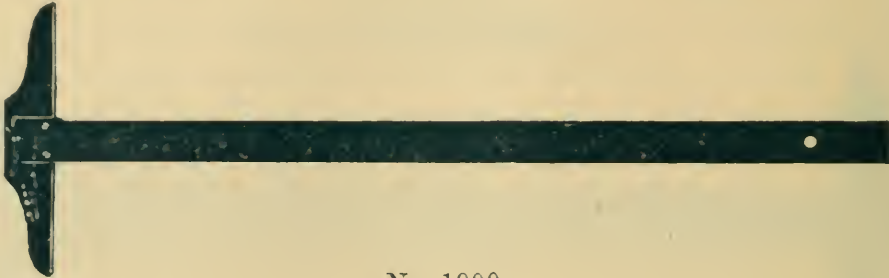
**Amber Blade, Curved Ebonized Head.**

		24	30	36	42	48 in.
1888.	Fixed Head.....each	\$1.80	2.25	2.75	3.25	3.50
1889.	Shifting " ..... "	3.25	3.75	4.25	5.00	6.00

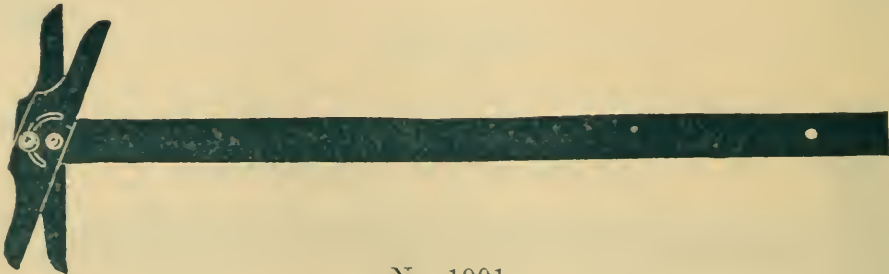
T SQUARES.

Rubber.

Walnut Head, with Maple Lining and Shellac Finish—Rubber Blade.



No. 1900.

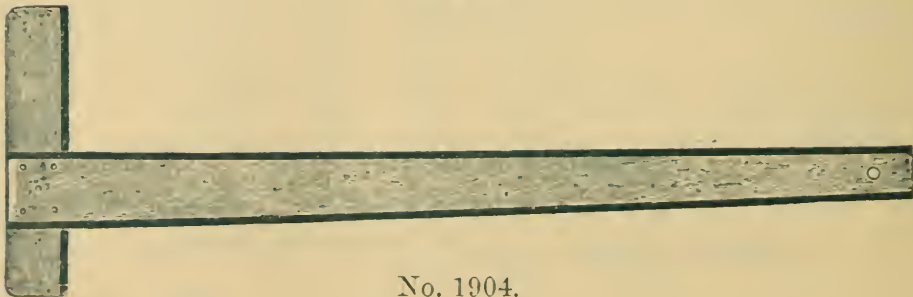


No. 1901.

		18	21	24	30	36	42 in.
1900.	Fixed Head... each	\$1.00	1.25	1.50	2.00	2.50	3.00
1901.	Shifting " ... "	1.75	2.00	2.25	2.50	3.00	3.50

Tapered

In Wood.



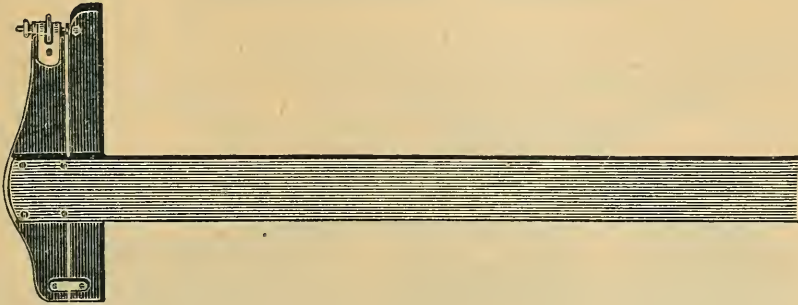
No. 1904.

1904. Mahogany, Ebony Lined, Blade and Head.

	30	36	42	48	54	60 in.
Each .....	\$1.20	1.40	1.60	1.85	2.25	2.75



T SQUARES.



No. 1908.

Fixed Head with Adjustment.

1908. Mahogany, Ebony Lined.

	24	30	36	42	48	54	60 in.
Each . . .	\$1.75	2.00	2.25	2.50	3.00	3.50	4.00

1909. Mahogany, Amber Lined.

	24	30	36	42	48	54	60 in.
Each . . .	\$3.25	3.50	4.00	4.50	5.00	6.00	7.00

With Dean's Patent Swivel, Nickel.



No. 1920.

Shifting Head with Adjustment.

1920. Mahogany, Ebony Lined.

	24	30	36	42	48	54	60 in.
Each . . .	\$2.50	2.75	3.00	3.25	3.50	4.00	4.50

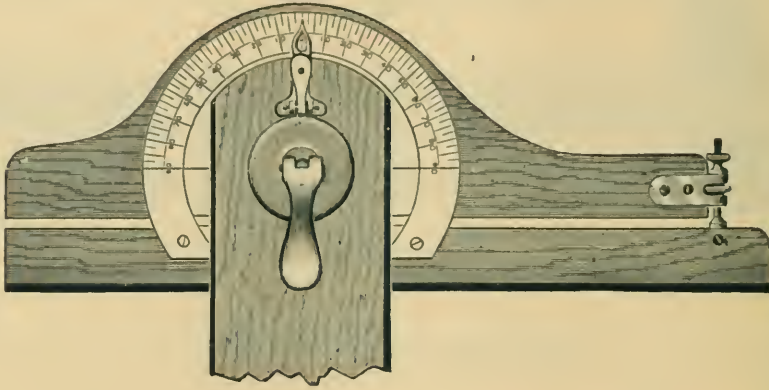
1921. Mahogany, Amber Lined.

	24	30	36	42	48	54	60 in.
Each . . .	\$3.50	3.75	4.25	4.75	5.50	6.50	7.50

T SQUARES.

Climax or Protractor.

Polished Nickel Mountings.

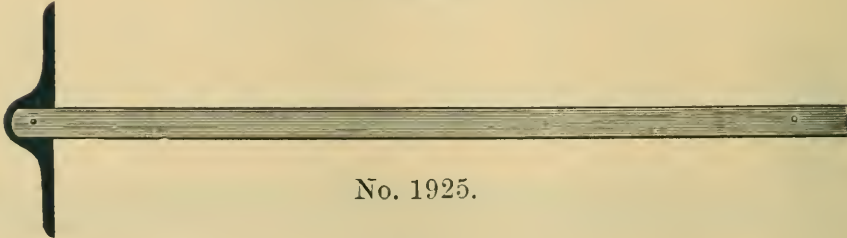


No. 1923.

Made in Mahogany, Ebony Lined, and Mahogany Amber Lined only.

			30	36	42 in.
1923.	Mahogany, Ebony Lined . . . . .	each	\$ 8.00	9.00	10.00
1924.	“ Amber “ . . . . .	“	10.00	11.00	12.00

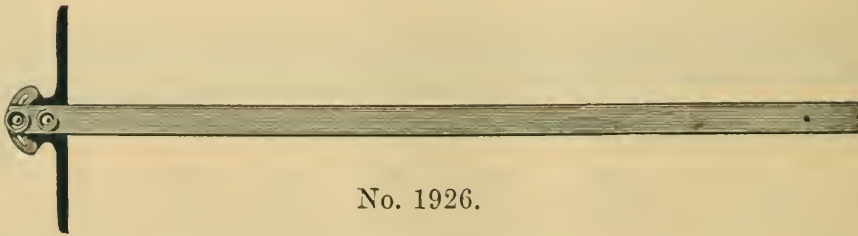
Steel.



No. 1925.

1925. Steel Blade, Nickel Plated, Fixed Japanned Iron Head.

		18	24	30	36	42 in.
Each . . . . .	\$3.00	3.50	4.50	5.60	6.60	



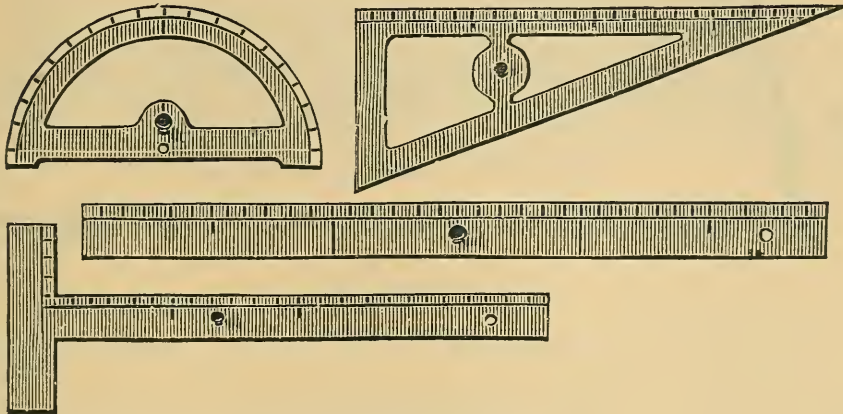
No. 1926.

1926. Steel Blade, Nickel Plated, Movable Japanned Iron Head.

		18	24	30	36	42 in.
Each . . . . .	\$4.25	5.00	5.75	6.75	7.75	

## BLACKBOARD SET.

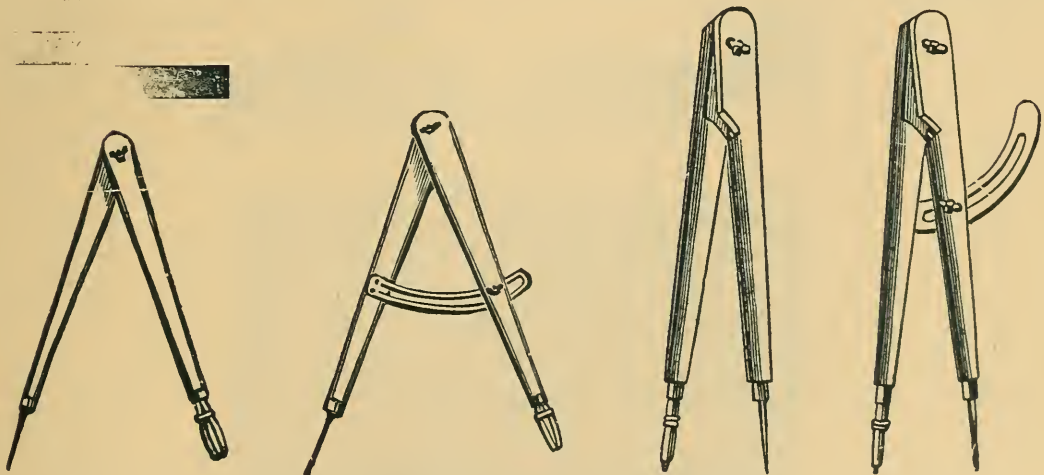
OF CHERRY WOOD WITH SHELLAC FINISH.



No. 1928.

1928. Contains 1 Protractor, 15½ in.; Triangle, 24 in.; Straight Edge, 36 in.; T Square, 24 in. .... set \$5.00

## BLACKBOARD DIVIDERS.



No. 1930.

No. 1931.

1932.

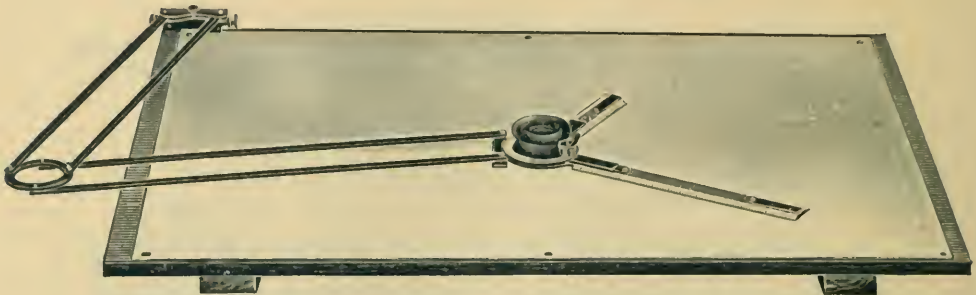
1933.

1930. Plain Wood Divider, with Brass Crayon Holder, 15 in. long.. each \$1.10  
 1931. " " " " Wooden Arc and Brass Crayon Holder, 15 in. long. .... " 1.35

For School, for Crayon, or Lead Pencil.

		12	15	18	24	30 in.
1932.	Without Arc .....	each \$1.10	1.35	1.60	1.85	2.10
1933.	With Brass Arc.....	" 1.60	1.85	2.25	2.65	3.15

## THE UNIVERSAL DRAFTING MACHINE.



### NET PRICE LIST.

1938. Machine for Drawings up to 32'' × 42'' ..... each \$25.00

HOW IT WORKS — You draw your lines and scale them with the same edge at the same time. This saves change of tools. Without the machine, you draw with one edge, lay that down, pick-up another, and scale with that. The saving of time is a third in average work. Angular work is as easy as straight. You adjust the square to any obliquity, clamp it there, and move it to any part of the board. It is always parallel to itself so long as one adjustment is kept. These two functions of the machine save time to the extent of a quarter to half, and distraction of mind less easy to value. All you have to do is to move the square to the place, and then draw and scale your line; the ruling edges take care of themselves.

## DRAWING BOARDS.

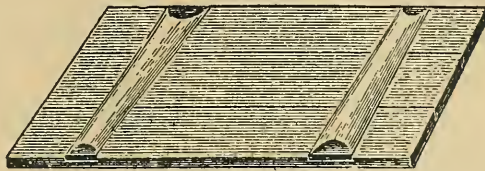


No. 1940.

End Battens, Flush both Sides.

No. 1940.		No. 1940.	
	Each.		Each.
12 × 17 ½-in. Pine Wood...	\$ .88	20 × 26 ⅞-in. Pine Wood...	\$1.50
16 × 21 ½ " " ...	1.00	22 × 28 ⅞ " " ...	1.63
18 × 24 ½ " " ...	1.13	23 × 31 ⅞ " " ...	1.88
19 × 25 ½ " " ...	1.25	31 × 42 ⅞ " " ...	2.75

**PINE WOOD DRAWING BOARD,**  
With Tapered Dovetailed Battens on the Back.



No. 1942.

No. 1942.		No. 1942.	
	Each.		Each.
12 × 17 ½-in. Pine Wood...	\$1.25	22 × 28 ⅞-in. Pine Wood...	\$2.50
16 × 21 ½ " " ...	1.38	23 × 31 ⅞ " " ...	3.13
18 × 24 ½ " " ...	1.50	27 × 34 ⅞ " " ...	3.50
19 × 25 ½ " " ...	1.75	31 × 42 ⅞ " " ...	5.00
20 × 26 ⅞ " " ...	2.00	33 × 55 ⅞ " " ...	7.50

**DRAWING BOARDS.**



No. 1943.

Hard Wood Ledges, Screws running in Oval Washers.

No. 1943.		No. 1943.	
	Each.		Each.
12 × 17 ½-in. Pine Wood...	\$1.25	22 × 28 ⅞-in. Pine Wood...	\$2.50
16 × 21 ½ " " ...	1.38	22 × 31 ⅞ " " ...	3.13
18 × 24 ½ " " ...	1.50	27 × 34 ⅞ " " ...	3.50
19 × 25 ½ " " ...	1.75	31 × 42 ⅞ " " ...	5.00
20 × 26 ⅞ " " ...	2.00	33 × 55 ⅞ " " ...	7.50

Packing Cases will be charged at cost.

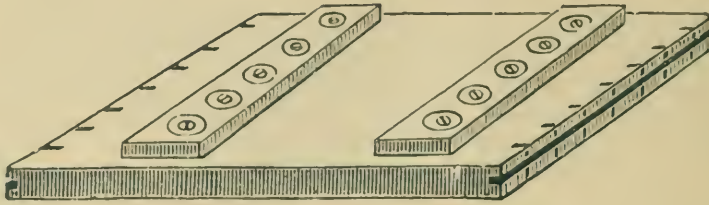
These Boards are made with the best of care of thoroughly seasoned Pine Wood.

All Boards with Shellac finish will be charged at 10 per cent advance on above prices.

Larger Boards made to order.

**DRAWING BOARDS.**

**For Lineal Drawing.**

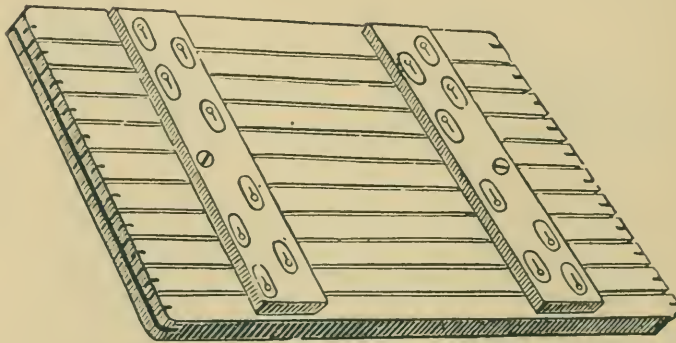


No. 1944.

Made of  $\frac{3}{4}$ -in. Pine Wood with  $\frac{3}{4}$ -in. Hardwood Ledges, screwed to the back, running in Oval Metal Washers, the end of Board is secured with Hardwood Strips and cut in.

No. 1944.		No. 1944.	
	Each.		Each.
18 × 24 $\frac{7}{8}$ -in. Pine Wood...	\$1.88	23 × 31 $\frac{7}{8}$ -in. Pine Wood...	\$3.38
19 × 25 $\frac{7}{8}$ " " ...	2.13	27 × 34 $\frac{7}{8}$ " " ...	3.75
20 × 26 $\frac{7}{8}$ " " ...	2.50	31 × 42 $\frac{7}{8}$ " " ...	5.63
22 × 28 $\frac{7}{8}$ " " ...	2.80	33 × 55 $\frac{7}{8}$ " " ...	8.38

**Super Extra.**



No. 1945.

For Draughtsmen's Use.

No. 1945.		No. 1945.	
	Each.		Each.
18 × 24 $\frac{7}{8}$ -in. Pine Wood...	\$2.13	23 × 31 $\frac{7}{8}$ -in. Pine Wood...	\$3.75
19 × 25 $\frac{7}{8}$ " " ...	2.50	27 × 34 $\frac{7}{8}$ " " ...	4.13
20 × 26 $\frac{7}{8}$ " " ...	3.00	31 × 42 $\frac{7}{8}$ " " ...	6.25
22 × 28 $\frac{7}{8}$ " " ...	3.38	33 × 55 $\frac{7}{8}$ " " ...	9.38

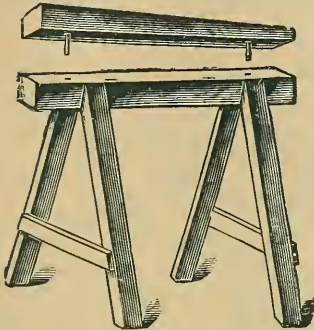
Packing Cases will be charged at cost.

All Boards with Shellac finish will be charged at 10 per cent advance on above prices.

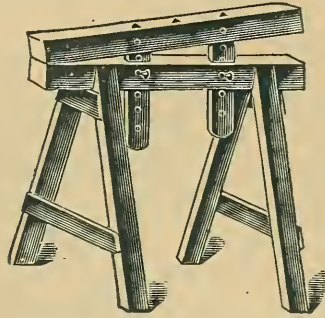
Larger Boards made to order.

**TRESTLES FOR DRAWING BOARDS.**

**PINE WOOD.**

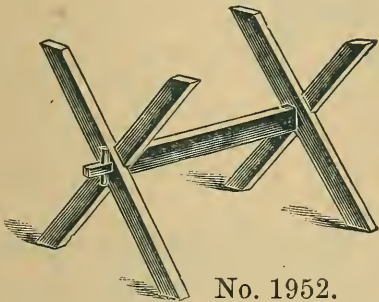


No. 1948.



1950.

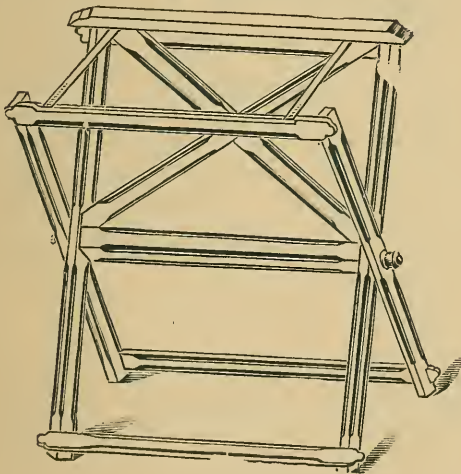
- |       |  |                |        |
|-------|--|----------------|--------|
| 1948. | Pine Wood Trestles, without slanting top | ..... per pair | \$5.00 |
| 1949. | “ “ with slanting top                    | ..... “        | 5.75   |
| 1950. | “ “ adjustable top                       | ..... “        | 9.00   |



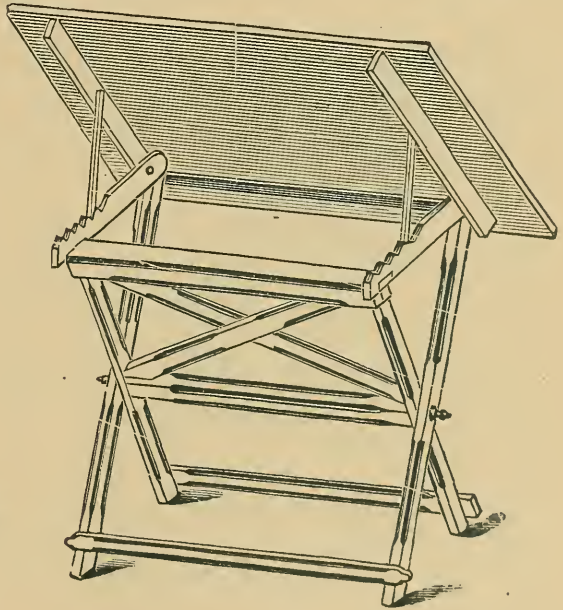
No. 1952.

**HARDWOOD TRESTLES.**

- |       |  |          |        |
|-------|--|----------|--------|
| 1952. | Ash Wood Trestles, Shellac Finish,<br>37 in. long, 38 in. high | ... each | \$5.75 |
|-------|--|----------|--------|



No. 1954.

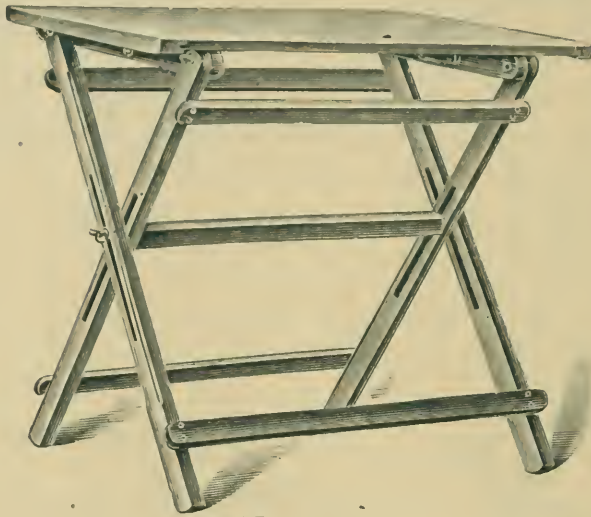


1956.

- |       |   |            |         |
|-------|---|------------|---------|
| 1954. | Folding Ash Wood Trestle, Shellac Finish, 37 in. high, 33 in. long    | ..... each | \$12.50 |
| 1955. | Folding Ash Wood Trestle, Shellac Finish, with Drawing Board, 31 x 42 | ..... “    | 16.75   |
| 1956. | Folding Ash Wood Trestle, Shellac Finish, with Drawing Board, 33 x 55 | ..... “    | 18.50   |

Packing Case will be charged at cost.

## THE NORMAL ADJUSTABLE DRAWING TABLE.



No. 1958.

The Normal Adjustable Drawing Table can be raised, lowered or set at an inclination instantly by loosening the nut of the central rod which moves in slots of the legs, as readily seen from the illustration.

The drawing board can be detached and the trestle folded up, occupying little more space than an ordinary drawing board, a great advantage if the table is not used constantly, as it can be put out of the way, or set up in a few minutes.

Trestles are made of Ash Wood, fine Shellac finish; drawing boards are made of clear and well-seasoned Pine.

SIZE OF BOARD.

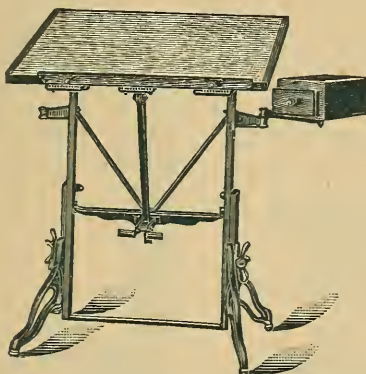
23 × 31	$\frac{7}{8}$ -in.	Pine Wood	.....	each	\$ 8.75
27 × 34	$\frac{7}{8}$	"	.....	"	10.00
31 × 42	$\frac{7}{8}$	"	.....	"	11.25
33 × 55	$\frac{7}{8}$	"	.....	"	15.00
36 × 48	$\frac{7}{8}$	"	.....	"	17.50
42 × 60	$1\frac{1}{8}$	"	.....	"	20.00

Packing Cases will be charged at cost.

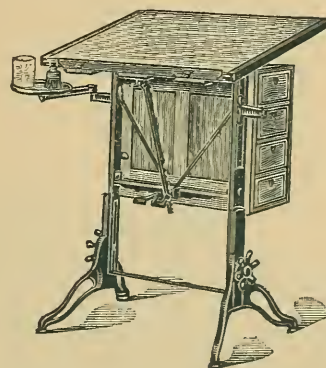


GENERAL DESCRIPTION OF  
**FRY'S PATENT DRAUGHTING TABLES.**

The Frames are made of the best quality gray iron, black enamel finish with bronze trimmings, thoroughly braced and bolted together. There are no springs or set screws to get weak or loose. The frames are made in proportion to size of the top. Sizes Nos. 3 to 7 have two braces under top as shown in cut on page 200. The adjustments are very simple and easily made. Top can be adjusted to any angle from a horizontal to a vertical position, without stooping or moving from your seat, and the table is very strong and stands rigid in all positions. They are made in four different styles, A, B, C and D, and seven sizes. All our tops or Drawing Boards are of the very best; made of 4-in. strips of the best quality Michigan White Pine, thoroughly kiln dried, tongued and grooved and glued together, with hard wood ledges secured to back with heavy screws running in oval slots, with metal bushing. The back is sawed half way through every 3 or 4 inches to reduce the warping strength. Side Ledges or Strips of Cherry Wood are put on by our own improved method, making a hard smooth surface for T square to work on, being a very desirable feature. The tops are full inch thick when finished. The Swing Drawer, box under top on Style B, and Cabinet on Style C, are all made of Oak, Antique Finish, Oil Rubbed.



No. 1960 with Swing Drawer.



No. 1960 with Cabinet.

The above cuts represent our table we designed particularly for Engineering and Drawing Schools, and persons who do not need very large drawing boards, and cannot afford to pay price of larger tables. Size of top 24 x 32 in. The top is made the same as our large tops and can be adjusted from 35 inches to 43 inches high when level, and folds same as shown on page 198. Swing drawer and tray are made of hard wood, nicely finished, and can be hung on either end of table.

Cabinet has 4 drawers, 7½ x 18 x 3½ in. (inside measure), made of Ash, paneled, antique finish. Either the circular swing tray or swing drawer can be used as desired. The cabinet can be attached at any time by the use of four screws. Larger tops can be used if desired.

1960. Without Swing Drawer . . . . .	each	\$12.00
With Swing Drawer . . . . .	"	14.00
With Cabinet and Circular Swing Tray . . . . .	"	22.00

A Liberal Discount Given to Schools. •

DRAUGHTING TABLES.

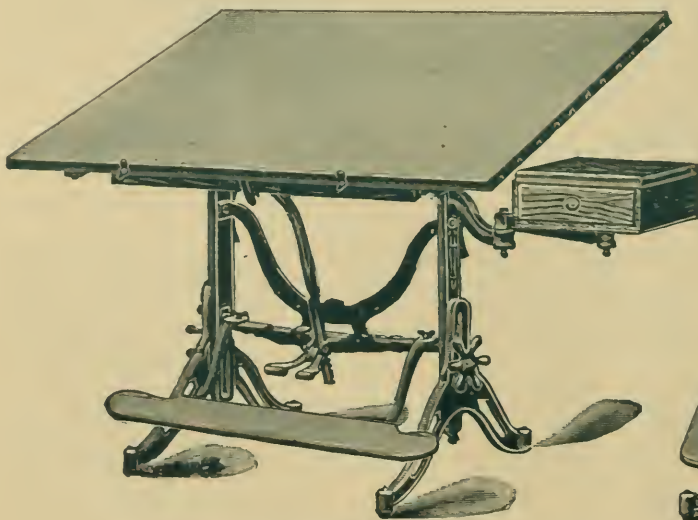


Style A, Size 1.

No. 1962.

The above cut represents the Style A Tables. It is a plain Table with Drawing Board. Top adjustable to any angle, from horizontal to vertical position. Can be raised from 32 inches to 38 inches when level. Folds same as shown below. The swing Drawer or Tray or Foot Rest can be attached when desired. The frame of Style A, Nos. 3 to 7, is made with two braces as shown on page 200.

No. 1,	32 × 42 in.	.....	each	\$17.50
2,	37 × 48 "	.....	"	23.50
3,	37 × 60 "	.....	"	28.00
4,	40 × 72 "	.....	"	32.00
5,	40 × 84 "	.....	"	37.00
6,	42 × 96 "	.....	"	42.00
7,	48 × 120 "	.....	"	47.00



Style B, Size 2. Front View.

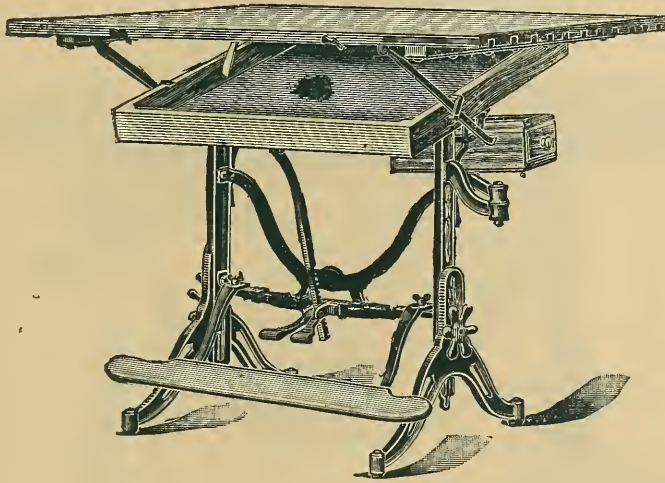


Style B. Folded End View.

No. 1964.

The above cuts represent the same table that is shown on page 199, only in different positions. For sizes and prices see same page. All styles and sizes fold same as shown above.

**DRAUGHTING TABLES.**



Style B, Size 2. With Top Open.

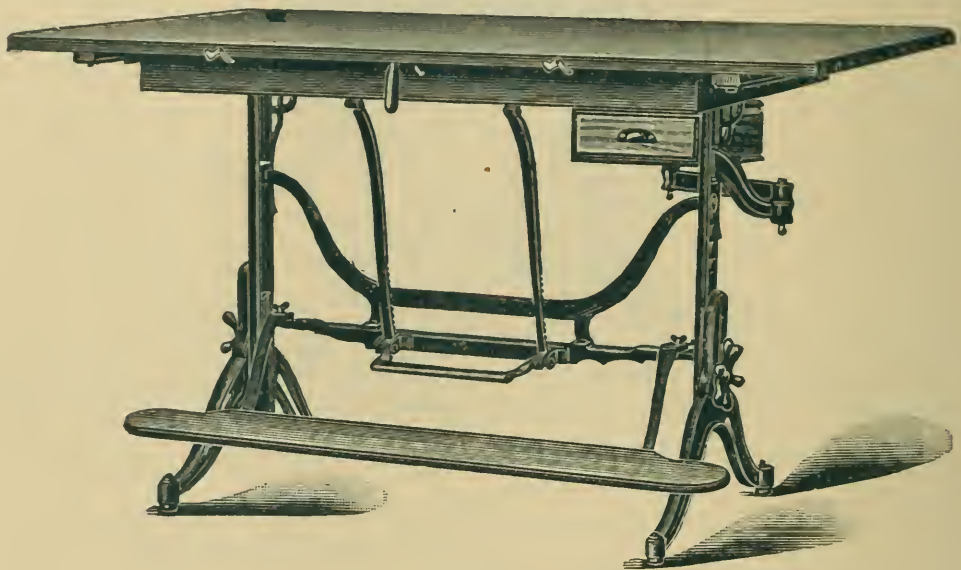
No. 1964.

No. 1, size 32 × 42 in.....	each	\$28.50
2, " 37 × 48 " .....	"	34.00

(Larger sizes, see page 200.)

Style B is the most popular of all. It has a neat and substantial foot rest, easily changed from one side of the table to another. A neatly polished Oak drawer and tray, 8 x 12½ in. (inside measure), attached to a swinging arm which can be hung on either end of frame; also a polished Oak tray, or box, two inches deep, with paneled bottom and molded sides, mounted on frame the same as the top on Style A. The top, or drawing board, is hinged to the rear edge of box or base, and by means of an iron lever under front edge of top and the tilting device on frame you can adjust the top to almost any angle required, and can change the height to any point from 34 inches to 42 inches without moving from your seat, and by raising or lowering the frame you can change the height to any point from 34 inches to 47 inches, and can also be used as an easel for water coloring or crayon work. Can be folded as shown on page 198. We claim this to be the best adjustable table on the market.

DRAUGHTING TABLES.



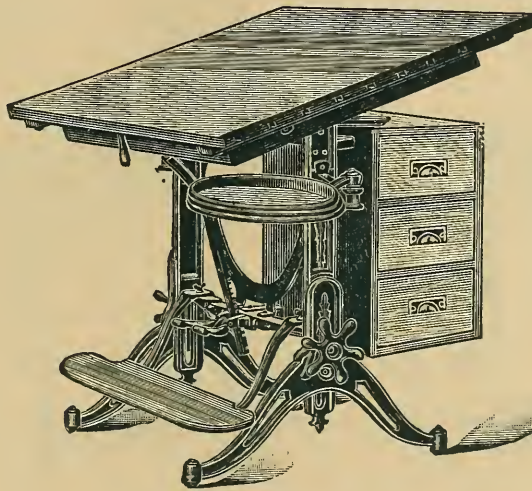
Style B, Size 3.

No. 1966.

The above cut illustrates Nos. 3 to 7, Style B. They vary in size according to number. The adjustments are the same in every way as the one shown on page 199. They are specially adapted for work of Engineers, Map Makers and large detail work.

No. 3, 37 × 60 in.....	each	\$40.00
4, 40 × 72 " .....	"	44.00
5, 40 × 84 " .....	"	48.00
6, 42 × 96 " .....	"	53.00
7, 48 × 120 " .....	"	58.00

**DRAUGHTING TABLES.**



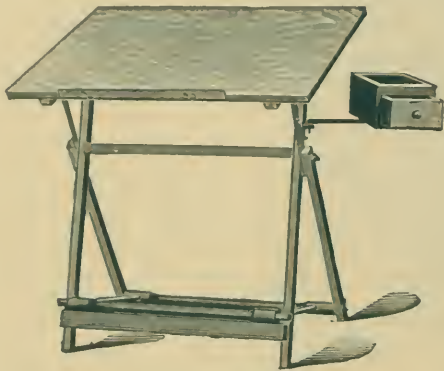
No. 1, Style C.

No. 1968.

The above cut illustrates Style C Table. It is the same as Style B, with cabinet or case attached to rear of frame. Cabinet is 12 inches wide, 16 inches high and 30 inches long. Made of Oak, paneled all around. Antique finish, with bronze pulls, or lock and key as desired. Drawer full length, to pull from right or left as ordered. The circular swing tray is over 12 inches in diameter. Made of Oak, and can be hung on either end of frame. Nos. 1 and 2 are particularly adapted for private office or home use. Folds same as shown on page 198.

No. 1, 32 × 42 in.....	each	\$37.00
2, 37 × 48 “ .....	“	42.00
3, 37 × 60 “ .....	“	47.00
4, 40 × 72 “ .....	“	52.00
5, 40 × 84 “ .....	“	57.00
6, 42 × 96 “ .....	“	62.00
7, 48 × 120 “ .....	“	67.00

**DRAUGHTING TABLES.**



No. 1, Folding Drawing Table with Swing Drawer.



No. 2, Folding Drawing Table.



No. 2, Folded.

No. 1970.

1971.

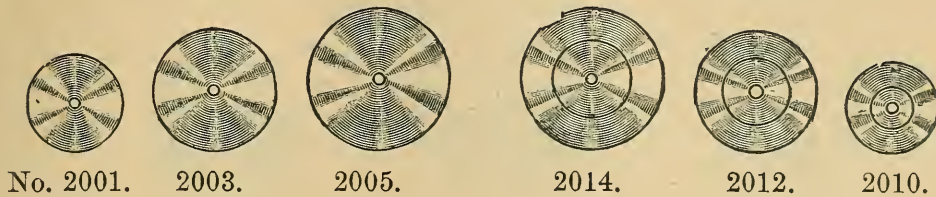
The above cuts illustrate our Patent Folding Drawing Table. The frames are made of Oak, filled, varnished and oil rubbed, the tops are made of clear white pine, smooth drawing surface, and trued up for T square and attached to frame by hinges and adjustable slides or braces. Top is easily adjustable to any angle desired, stands firm, and can be folded up flat when not in use. It is the best cheap table on the market.

1970.	No. 1,	24 × 36 in.,	29 in. high,	without Swing Drawer.	....	each	\$ 5.00
1971.	No. 2,	32 × 42 " 38 "	" " " " " " " " " " " "	.....	"	7.50	
1972.	No. 3,	37 × 48 " 38 "	" " " " " " " " " " " "	.....	"	10.00	
	Swing Arm and Drawer	.....				"	2.00

The No. 1 with Swing Drawer is a good table for drawing schools where they cannot afford more expensive tables.

Liberal Discount Given to Dealers and Schools.

## THUMB TACKS.



Tacks Nos. 2001-2014 are made with great care. They have best hardened Steel Pins judiciously proportioned in thickness and length so as not to bend, which are *screwed* and riveted into German Silver Heads, with fine thin edges, offering no obstruction to T square or triangle to slide over.

### FINE GERMAN SILVER TACKS.

Steel Points, Screwed in and Riveted, One Dozen on a Card.

2001.	Round Head,	$\frac{3}{8}$ in.	.....dozen	\$ .60
2003.	"	$\frac{1}{2}$ "	....."	.70
2004.	"	$\frac{9}{16}$ "	....."	.75
2005.	"	$\frac{5}{8}$ "	....."	.80
2010.	Beveled Head,	$\frac{3}{8}$ "	....."	.60
2012.	"	$\frac{1}{2}$ "	....."	.70
2013.	"	$\frac{9}{16}$ "	....."	.75
2014.	"	$\frac{5}{8}$ "	....."	.80

### GERMAN SILVER TACKS.

Steel Points, Riveted, One Dozen on a Card.

2021.	Round Head,	$\frac{3}{8}$ in.	.....dozen	\$ .30
2022.	"	$\frac{7}{16}$ "	....."	.35
2023.	"	$\frac{1}{2}$ "	....."	.40
2024.	"	$\frac{9}{16}$ "	....."	.45
2025.	"	$\frac{5}{8}$ "	....."	.50
2030.	Beveled Head,	$\frac{3}{8}$ "	....."	.30
2031.	"	$\frac{7}{16}$ "	....."	.35
2032.	"	$\frac{1}{2}$ "	....."	.40
2033.	"	$\frac{9}{16}$ "	....."	.45
2034.	"	$\frac{5}{8}$ "	....."	.50

### STEEL THUMB TACKS.

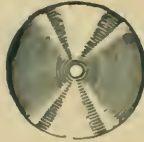
2035.	Solid Head,	$\frac{3}{8}$ in.	.....per box of 100	\$ .75
2036.	"	$\frac{7}{16}$ "	....."	1.00
2037.	"	$\frac{1}{2}$ "	....."	1.25

**THUMB TACKS.**

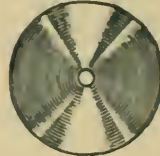
Round Head, not Mounted.



No. 2040.



2041.



2042.

These tacks are capped so that there is no danger of point pushing through the head.

2040.	Brass,	$\frac{7}{16}$ in.	.....	per gross	\$ .65
2041.	"	$\frac{1}{2}$ "	.....	"	.75
2042.	"	$\frac{9}{16}$ "	.....	"	.85
2050.	German Silver,	$\frac{7}{16}$ in.	.....	"	1.00
2051.	"	$\frac{1}{2}$ "	.....	"	1.25
2052.	"	$\frac{9}{16}$ "	.....	"	1.50

Round Head, Mounted, One Dozen on a Card.

2054.	Brass,	$\frac{7}{16}$ in.	.....	per gross	\$1.00	per dozen	\$ .15
2056.	"	$\frac{1}{2}$ "	.....	"	1.10	"	.20
2058.	"	$\frac{9}{16}$ "	.....	"	1.25	"	.25
2055.	German Silver,	$\frac{7}{16}$ in.	.....	"	1.50	"	.25
2057.	"	$\frac{1}{2}$ "	.....	"	1.65	"	.30
2059.	"	$\frac{9}{16}$ "	.....	"	1.85	"	.35

**STEEL STAMPED TACKS.**



No. 2060.



2061.



2062.

2060.	Round Heads,	$\frac{3}{8}$ in. diameter	.....	per box of 100	\$ .45
2061.	"	$\frac{7}{16}$ " " "	.....	" "	.55
2062.	"	$\frac{9}{16}$ " " "	.....	" "	.65

Mounted, One Dozen on a Card.

2060 M.	Round Heads,	$\frac{3}{8}$ in. diameter	.....	per gross	\$ .90	per dozen	\$ .10
2061 M.	"	$\frac{7}{16}$ " " "	.....	"	1.10	"	.15
2062 M.	"	$\frac{9}{16}$ " " "	.....	"	1.30	"	.20



**THUMB TACKS.**

The Capped Stamped Steel Tacks have a thin but strong German Silver Metal Cap, firmly spun on the head. They are of very neat appearance and very durable.

2064.	Capped Tacks,	$\frac{3}{8}$ in. diameter.....	per box of 100	\$ .75
2065.	"	$\frac{7}{16}$ " " .....	" "	.90
2066.	"	$\frac{9}{16}$ " " .....	" "	1.10

Mounted, One Dozen on a Card.

2064 M.	Capped Tacks,	$\frac{3}{8}$ in. diameter... per gross	\$1.50	per dozen	\$ .20
2065 M.	"	$\frac{7}{16}$ " " ... "	1.80	"	.25
2066 M.	"	$\frac{9}{16}$ " " ... "	2.20	"	.30

**HARDTMUTH'S NEEDLE POINT.**

**BEST QUALITY TACKS.**

2067.	33 Round Heads,	$\frac{7}{16}$ in. diameter... per gross	\$8.00	per dozen	\$ .75
35	"	$\frac{9}{16}$ " " ... "	9.00	"	.85
37	"	$\frac{3}{4}$ " " ... "	11.50	"	1.00

**HORN CENTERS.**



No. 2068.

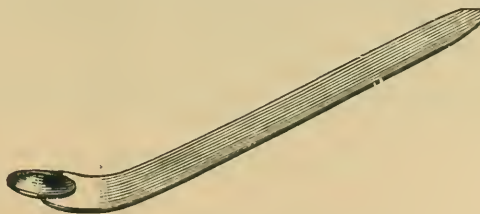


2069.



2068.	Horn Center, plain,	$\frac{1}{2}$ in. diameter .....	each	\$ .15
2069.	"	with German Silver Rim, $\frac{3}{4}$ in. diameter.....	"	.50

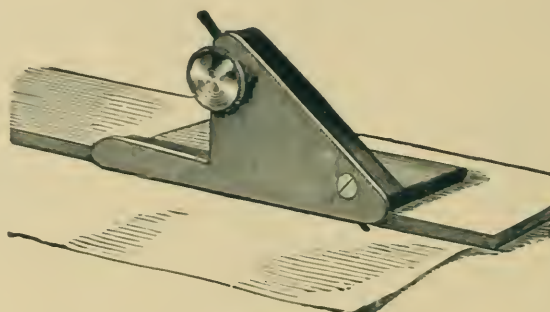
**TACK LIFTER.**



No. 2070.

2070.	Tack Lifter, Nickel Plated.....	each	\$ .25
-------	---------------------------------	------	--------

**PAPER CUTTERS.**



No. 2072.

2072. Paper Cutter, Nickel Plated.....each \$ .65

**LEAD PENCIL FILE.**

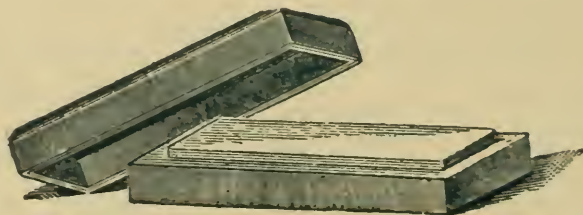


No. 2073.

2073. Lead Pencil File, 6 in. ....each \$ 1.25

A convenient little tool, consisting of a steel file with black wooden handle and with a steel tack lifter at the end.

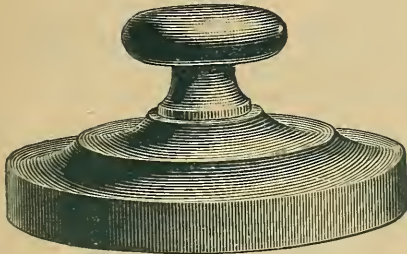
**ARKANSAS OIL STONES.**



No. 2074.

2074.	Arkansas Oil Stone, in case with cover, 3 in.....	each	\$ .75
2075.	“ “ “ “ 5 “ .....	“	2.00
2076.	“ “ wedge shape slip .....	“	.40
2077.	“ “ “ about 1½ × 3 in.....	“	.60
2078.	“ “ “ “ 1½ × 4½ in.....	“	.80

PAPER WEIGHTS.

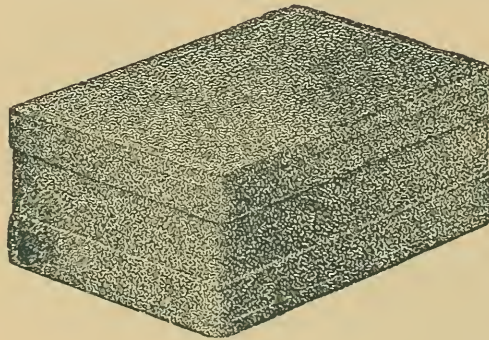


No. 2081.



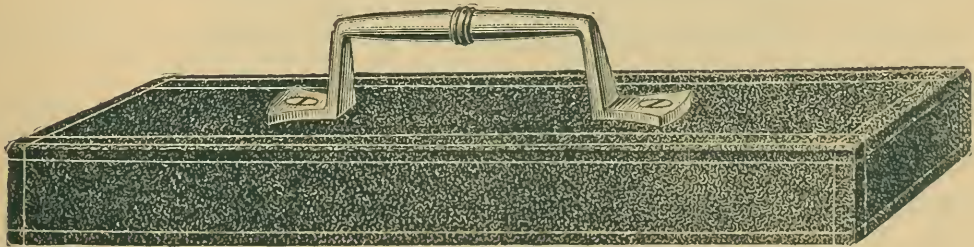
2082.

2080.	Japanned, weight 10 ounces.....	each	\$ .15
2081.	“ “ 1½ pounds.....	“	.20
2082.	“ “ 1 pound.....	“	.25



No. 2083-2084.

2083.	Leather covered, weight 1½ pounds, size, 2 $\frac{7}{8}$ × 2 × 1 $\frac{1}{4}$ .....	each	\$ .60
2084.	“ “ “ 2 $\frac{1}{2}$ “ “ 3 $\frac{3}{4}$ × 2 $\frac{3}{8}$ × 1 $\frac{1}{4}$ .....	“	.75



No. 2085-2086.

2085.	Leather covered, Polished Brass Handle, weight 4½ pounds, size, 8 $\frac{1}{4}$ × 1 $\frac{7}{8}$ × 4 $\frac{1}{2}$ .....	each	\$1.75
2086.	Leather covered, Polished Brass Handle, weight 5½ pounds, size, 9 $\frac{3}{4}$ × 2 × 1 $\frac{1}{4}$ .....	“	2.00

# WATER COLORS.

WINSOR & NEWTON'S.



Full Cake.



Full Pan.



Half Cake.



Half Pan.

2090.—

- |                    |                      |                     |                     |
|--------------------|----------------------|---------------------|---------------------|
| 1. Antwerp Blue.   | *13. Constant White. | 23. Italian Pink.   | 35. Prussian Green. |
| 2. Bister.         | 14. Deep Chrome.     | 24. Ivory Black.    | 36. Raw Sienna.     |
| 3. Blue Black.     | *15. Dragon's Blood. | *25. King's Yellow. | 37. Raw Umber.      |
| *4. British Ink.   | 16. Emerald Green.   | 26. Lamp Black.     | 40. Roman Ocher.    |
| 5. Brown Ocher.    | *17. Flake White.    | 27. Light Red.      | 41. Sap Green.      |
| 6. Brown Pink.     | 18. Gamboge.         | 28. Naples Yellow.  | 42. Terre Verte.    |
| *7. Bronze.        | 19. Hooker's Green,  | 29. Neutral Tint.   | 43. Vandyke Brown   |
| 8. Burnt Sienna.   | No. 1.               | 30. New Blue.       | 44. Venetian Red.   |
| 9. Burnt Umber.    | 20. Hooker's Green,  | 31. Olive Green.    | 45. Vermilion.      |
| 10. Chinese White. | No. 2.               | 32. Orange Chrome.  | 47. Yellow Lake.    |
| 11. Chrome Yellow. | 21. Indigo.          | 33. Payne's Grey.   | 48. Yellow Ocher.   |
| 12. Cologne Earth. | 22. Indian Red.      | 34. Prussian Blue.  |                     |

Full Cake or Pan...each \$ .25

Half Cake or Pan...each \$ .15

2091.—

- |                    |                     |                     |                     |
|--------------------|---------------------|---------------------|---------------------|
| *49. Black Lead.   | 54. Mars Yellow.    | 56. Purple Lake.    | 90. Scarlet Madder. |
| 50. Brown Madder.  | 55. Neutral Orange. | 57. Roman Sepia.    | 60. Scarlet         |
| 51. Carminé Lake.  | 64. Orange          | 58. Ruben's Madder. | Vermilion.          |
| 89. Cerulean Blue. | Vermilion.          | 59. Scarlet Lake.   | 61. Sepia.          |
| 52. Crimson Lake.  |                     |                     | 62. Warm Sepia.     |

Full Cake or Pan...each \$ .45

Half Cake or Pan...each \$ .25

2092.—

- |                     |                    |                          |                     |
|---------------------|--------------------|--------------------------|---------------------|
| 69. Cadmium Orange. | 71. French Blue.   | 87. Mars Orange.         | 79. Pure Scarlet.   |
| 68. Cadmium Yellow. | 74. Indian Purple. | 73. Oxide of Chromium.   | 65. Violet Carmine. |
| 63. Cobalt Blue.    | 53. Indian Yellow. | 77. Pale Cadmium Yellow. | 61. Viridian.       |
|                     | 75. Intense Blue.  |                          |                     |
|                     | 76. Lemon Yellow.  |                          |                     |

Full Cake or Pan...each \$ .65

Half Cake or Pan...each \$ .35

2093.—

- |                    |                     |                  |                     |
|--------------------|---------------------|------------------|---------------------|
| 66. Aureolin.      | *85. Field's Orange | 78. Pink Madder. | 82. Purple Madder.  |
| 91. Aurora Yellow. | Vermilion.          | 92. Primrose     | 80. Rose Madder.    |
| 67. Burnt Carmine. | 86. Madder Carmine. | Aureolin.        | 93. Yellow Carmine. |
| 70. Carmine.       |                     |                  |                     |

Full Cake or Pan...each \$ .90

Half Cake or Pan...each \$ .45

2094.—

- |            |                      |
|------------|----------------------|
| 83. Smalt. | 84. Ultramarine Ash. |
|------------|----------------------|

Full Cake or Pan...each \$1.40

Half Cake or Pan...each \$ .70

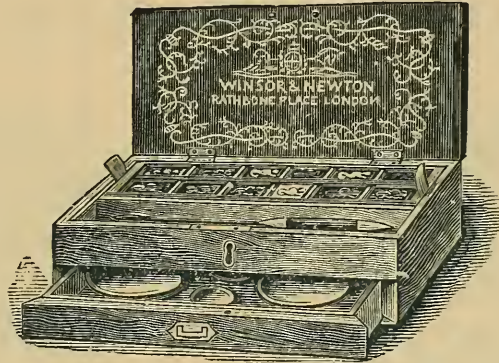
2095.—

88. Genuine Ultramarine.

Quarter Cake .....each \$2.25

Colors marked \* are NOT made in full and half PANS, but ONLY in full and half CAKES.

**WATER COLORS.  
IN BOXES.**



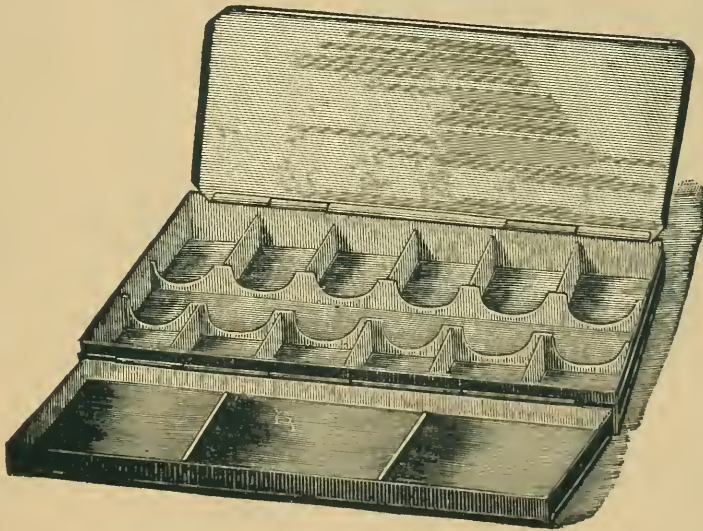
Lock and Drawer.

No. 2099.

							Each.
2096.	Lock and Drawer Box containing	12	Half Cakes,	Brushes,	etc.	...	\$ 5.25
2097.	"	"	18	"	"	"	6.50
2098.	"	"	24	"	"	"	8.90
2099.	"	"	12	Whole	"	"	7.70
3000.	"	"	18	"	"	"	10.50
3001.	"	"	24	"	"	"	14.50

**EMPTY JAPANNED TIN BOXES.**

For Moist Colors in Pans.



No. 3011.

3008.	For	6	Whole or	12	Half Pans	.....	each	\$ .80
3009.	"	8	"	16	"	.....	"	.90
3010.	"	10	"	20	"	.....	"	1.05
3011.	"	12	"	24	"	.....	"	1.15
3012.	"	16	"	32	"	.....	"	1.30
3013.	"	18	"	36	"	.....	"	1.40
3014.	"	24	"	48	"	.....	"	1.60

HIGGINS'

DRAWING BOARD MUCILAGE AND PHOTO-MOUNTER.



No. 3016.



3018.

3015.	Drawing Board Mucilage, 3-oz. Jars, 1 doz. in a box . . . . .	per doz.	\$1.80
3016.	“ “ “ 6 “ “ 1 “ “ . . . . .	“	3.00
3017.	“ “ “ 1-gal. “ . . . . .	each	3.50
3018.	Photo-Mounter, Three-ounce Jars, 1 dozen in a box . . . . .	per doz.	1.80
3019.	“ “ Six “ “ 1 “ “ . . . . .	“	3.00
3020.	“ “ One gallon Jars . . . . .	each	3.50

TECHNICAL WATER COLORS.

The Technical Colors introduced by us many years ago offer to the profession an always ready material for tinting drawings. The tints being ready mixed, these moist colors save the work and time of mixing, and warrant uniformity at all times.

3021.—

- |                  |                |                    |                    |
|------------------|----------------|--------------------|--------------------|
| 1. Cast Iron.    | 6. Machinery.  | 10. Brick.         | 14. Gamboge.       |
| 2. Wrought Iron. | 7. Leather.    | 11. Stone.         | 15. Yellow Ocher.  |
| 3. Steel.        | 8. Light Wood. | 12. Brown Stone.   | 16. Vermilion.     |
| 4. Copper.       | 9. Dark Wood.  | 13. Prussian Blue. | 17. Chinese White. |
| 5. Brass.        |                |                    |                    |

Full Pans . . . . . each \$ .20

Half Pans . . . . . each \$ .12

3022.—

18. Carmine.

Full Pans . . . . . each \$ .50

Half Pans . . . . . each \$ .25

WINSOR & NEWTON'S

LIQUID WATER COLORS AND MEDIUMS.



No. 3023.



3024.

	Small Bottles.	Large Bottles.
3023. Chinese White.....	per doz. \$1.80	per doz. \$ 3.60
3024. Indian Ink.....	“ .1.80	“ 3.60

LIQUID DRAWING INKS.



No. 3041.



3044.

BLACKS, two kinds: Waterproof (White Label); General (Red Label).

WATERPROOF COLORS: Carmine, Scarlet, Vermilion, Brick Red, Blue, Yellow, Green, Orange, Brown, Indigo, Violet.

	Oz. Bottle,	¼	8	16	32
3041. Higgins' General Black.....	each	\$ .25	2.00	3.75	7.00
3042. " Waterproof Black.....	"	.25	2.00	3.75	7.00
3043. " " Colored Inks.....	"	.25	2.00	3.75	7.00

In ordering No. 3043, state color desired.

3044. Burgeois' Waterproof Black, small size .....	each	\$ .25
3045. " " " large size .....	"	.50

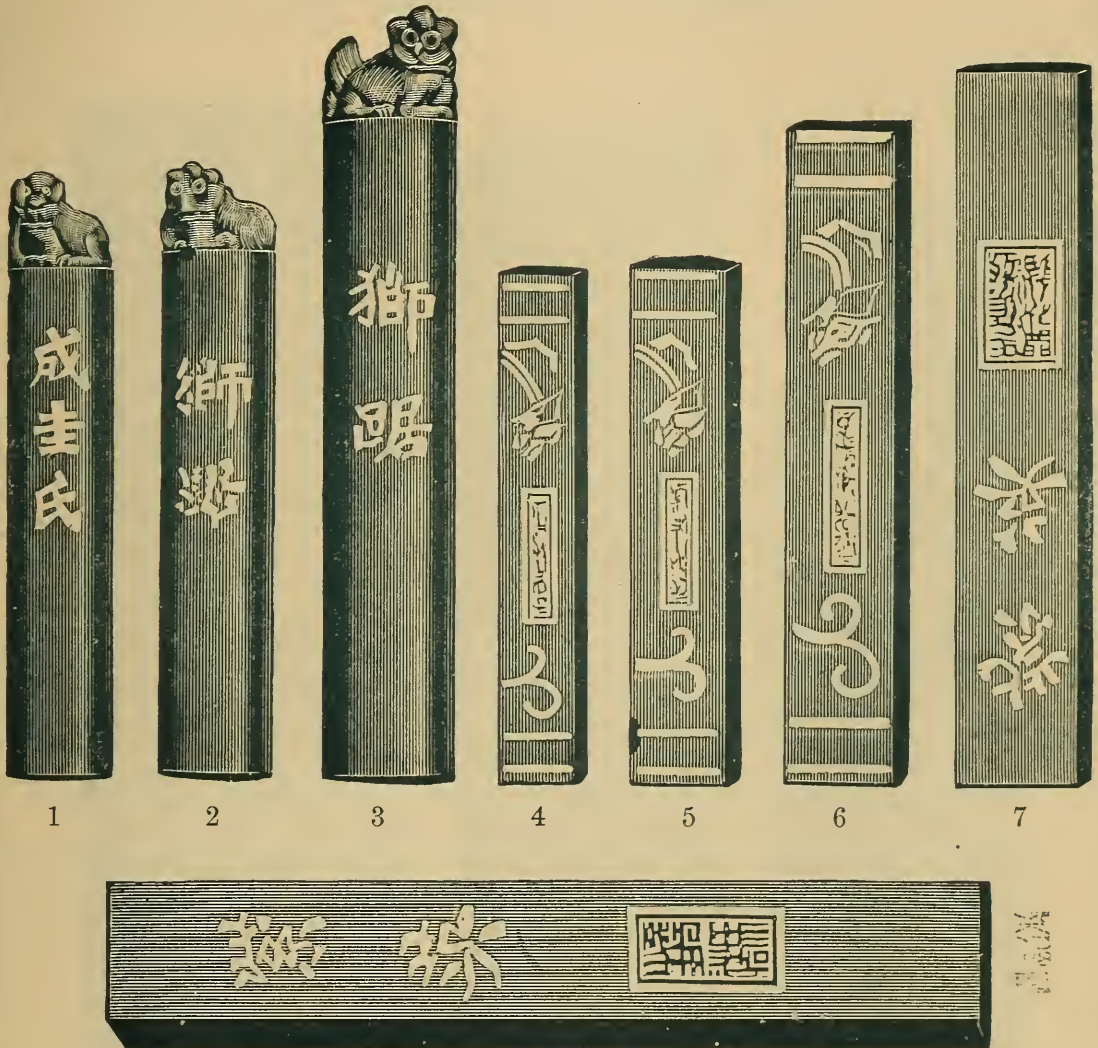
HOW TO DILUTE THE INKS.

If the black inks should require to be thinned or diluted, use distilled water with a little aqua ammonia—four drops to the ounce of water. To dilute the colored inks use distilled water only. Never add any acid or mix with other inks.



# CHINESE OR INDIAN INKS.

Our own direct importation. Illustrations full size.



8

No. 3050.

3050. Chinese or Indian Inks.

1.	First quality Lion Head, small,	2 $\frac{3}{8}$ in. long	.....	each	\$ .10
2.	“ “ medium,	2 $\frac{3}{8}$ “ thick	... “	“	.15
3.	“ “ large,	3 $\frac{1}{4}$ “ “	... “	“	.25
4.	Square Black, gilt figures,	2 $\frac{1}{8}$ -in. long	.....	“	.25
5.	“ “	2 $\frac{1}{8}$ “ thick	.....	“	.35
6.	“ “	2 $\frac{3}{4}$ “ “	.....	“	.60
7.	“ <i>super super</i> , small,	2 $\frac{3}{8}$ in. long,	thick	... “	.30
8.	“ “ large,	3 $\frac{5}{8}$ “ “	....	“	.60

CHINESE OR INDIAN INKS.

Our own direct importation. Illustrations full size.



9



10



11

No. 3050.

3050. Chinese or Indian Inks.

9. Oblong, 3 $\frac{3}{4}$ in. long .....	each	\$4.50
10. Extra fine quality, 3 $\frac{5}{8}$ in. long. ....	"	2.70
11. Oblong, Black, 4 in. long. ....	"	8.00

CHINESE OR INDIAN INKS.

Our own direct importation. Illustrations full size.



No. 3050-12.

No. 3054.

3050.	12.	Oblong, Gilt, extra fine,	$2\frac{1}{8}$ in. long	.....	each	\$2.40
3052.		Red Chinese Inks,	$2\frac{3}{4}$ in. long	.....	"	.30
3054.		Blue	" $2\frac{3}{4}$ "	.....	"	.30
3056.		Yellow	" $2\frac{3}{4}$ "	.....	"	.30

# JAPANESE INKS.

Waterproof. Our own direct importation.

Illustrations full size.



1

2

3

No. 3060.

3060. Japanese Inks are harder than Chinese Inks, and will stand washing.

1. Oblong Black .....	each	\$ .90
2. " .....	"	1.20
3. Diagonal Black .....	"	1.80

JAPANESE INKS.

Waterproof. Our own direct importation.

Illustrations full size.



4

5

6

No. 3060.

3060. Japanese Inks are harder than Chinese Inks, and will stand washing.

4. Oblong Black, extra fine	.....	each	\$2.00
5. " "	.....	"	3.50
6. " "	.....	"	6.00

Stick 5 is about double and Stick 6 about four times the size of Stick 4.

WINSOR & NEWTON'S

"ALBANINE" AND "PROCESS BLACK."

For Drawing in Black and White for Reproduction.



No. 3062.



3064.

		Dozen	Each
3062.	Albanine, Bottles .....	\$3.75	\$ .32
3064.	Process Black, Bottle .....	3.75	.32

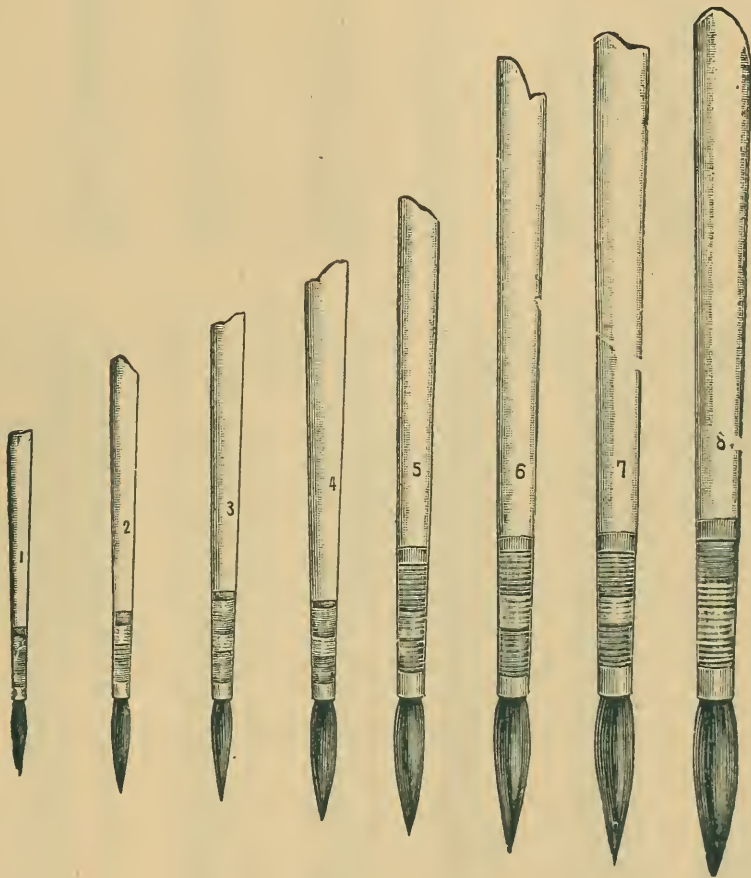
By the use of Albanine and Process Black, in Drawings intended for Process Reproduction, the difficulty hitherto experienced of preserving the true values of the lights is entirely obviated.

# BRUSHES.

## QUILL BRUSHES.

Of Camel's Hair and Red Sable.

Illustrations full size.

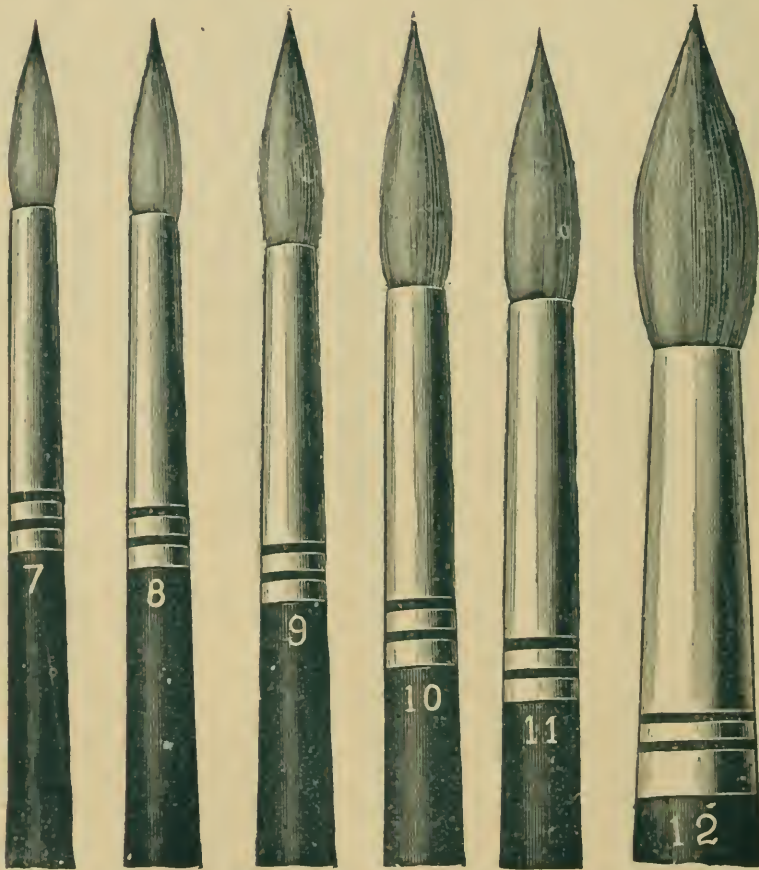
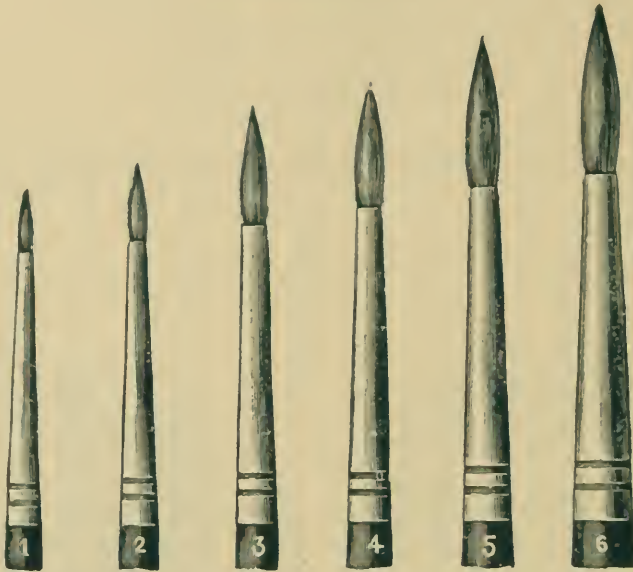


No. 3070—3071.

		1	2	3	4	5	6	7	8
3070.	Camel's Hair in Quills . . . . each	\$ .05	.05	.06	.06	.08	.08	.10	.10
3071.	Red Sable " . . . . "	.15	.20	.25	.30	.35	.40	.45	.50

CAMEL'S-HAIR BRUSHES.

Illustrations full size.



No. 3072.



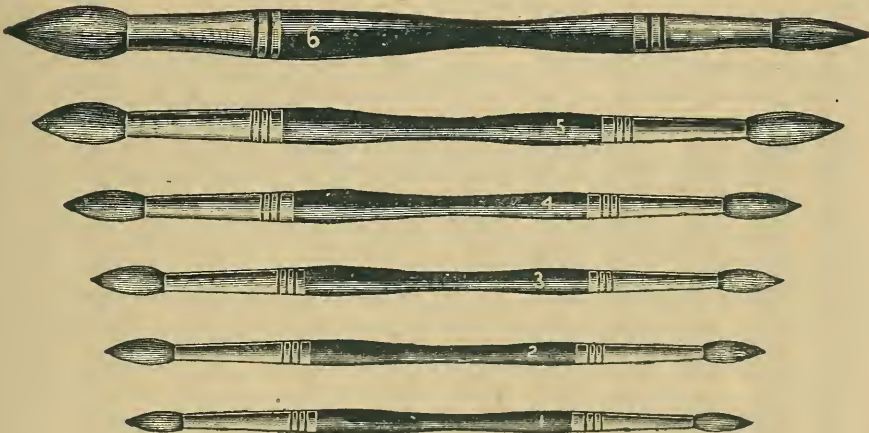
**CAMEL'S-HAIR BRUSHES.**

			1	2	3	4	5	6	
3072.	In Tin, with Handle.....	each	\$ .06	.08	.08	.10	.10	.12	
				7	8	9	10	11	12
	"	"	\$ .15	.20	.20	.25	.30	.35	

**DOUBLE-POINTED BRUSHES.**

Of Camel's Hair and Red Sable.

Illustrations  $\frac{1}{2}$  size.



No. 3074.

3074. Double-pointed Camel's-Hair Brushes, in Tin.

			1	2	3	4	5	6
	Each .....		\$ .25	.30	.35	.40	.50	.60

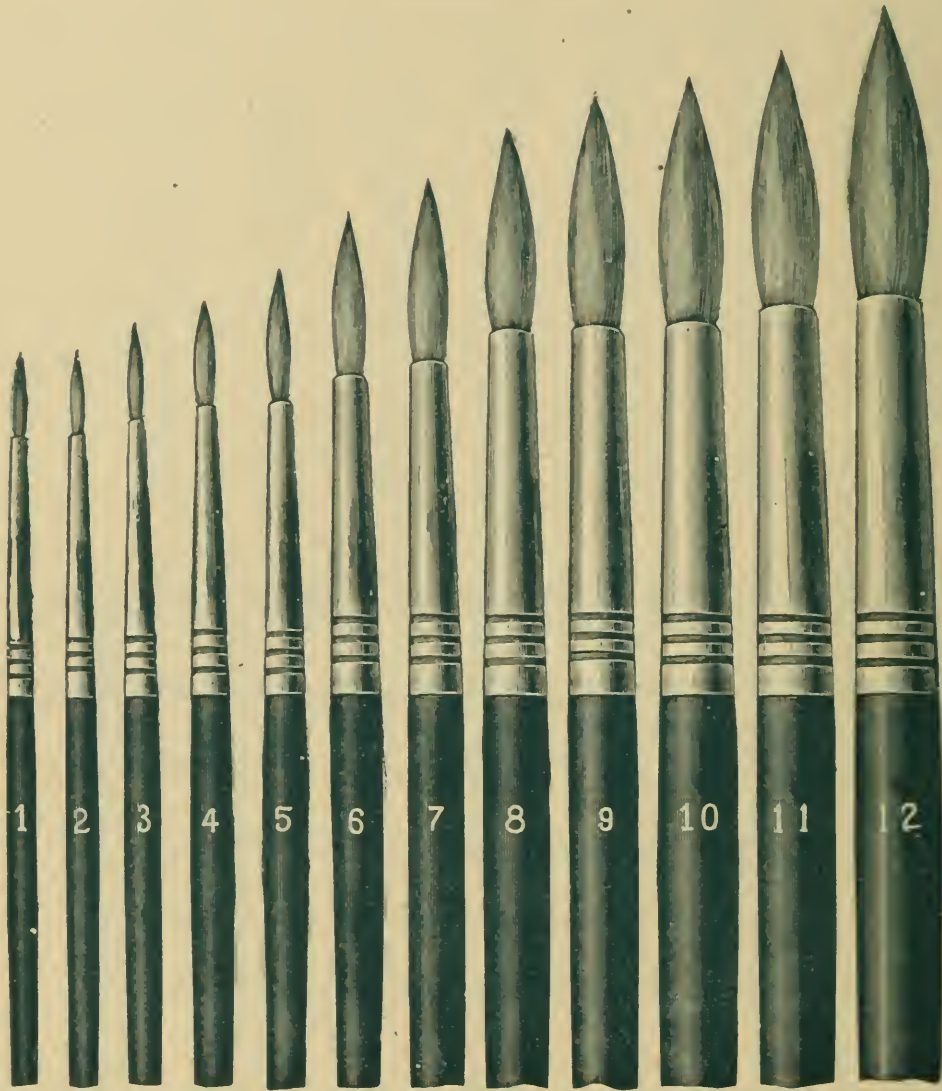
3076. Double-pointed Red Sable Brushes, in Albata.

			1	2	3	4
	Each .....		\$ .60	.90	1.50	2.40

RED SABLE BRUSHES.

In Albata, with handle.

Illustrations full size.



No. 3078.

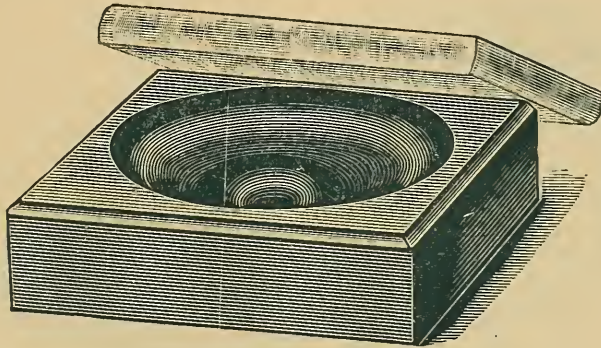
3078. Red Sable Brushes, round, in Albata, with Black Handle.

	1	2	3	4	5	6	7	8	9	10	11	12
Each ..\$	.15	.20	.25	.30	.40	.55	.70	.90	1.20	1.50	2.00	2.75

3080. Black Sable, round, in Albata, with Black Handle.

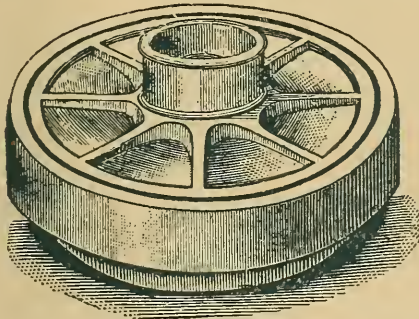
	1	2	4	6	8	10	12	14	16	18	20	22
Each ..\$	.20	.25	.30	.35	.45	.55	.70	.90	1.25	1.75	2.35	3.15

CHINA AND GLASSWARE.



No. 3082.

3082. Slate Ink Cup, with glass cover,  $3\frac{1}{2} \times 3\frac{1}{2}$  in.....each \$ .50

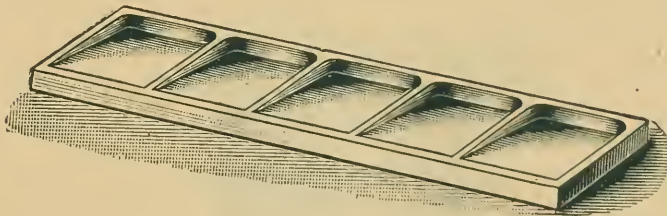


No. 3084.



No. 3090.

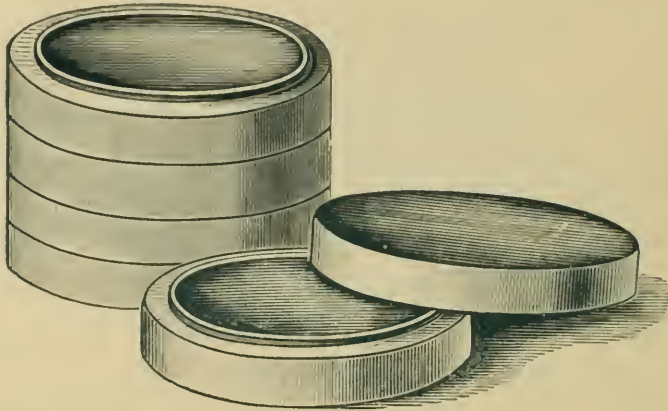
3084.	Architect's Slant and Basin, 8 divisions and cup, 7 in. diam..	each	\$1.35
3086.	Ink or Color Slab, 3 Wells and Slope, $1\frac{1}{2} \times 2\frac{3}{4}$ in.....	"	.10
3087.	" " 3 " " " $2\frac{3}{8} \times 3\frac{5}{8}$ " .....	"	.20
3088.	" " 3 " " " $2\frac{3}{4} \times 4\frac{1}{4}$ " .....	"	.25
3089.	" " 3 " " " $3 \times 4\frac{1}{2}$ " .....	"	.30
3090.	" " 3 " " 3 Slopes, $2\frac{1}{2} \times 4$ " .....	"	.20
3091.	" " 5 " " 5 " $4 \times 7\frac{1}{2}$ " .....	"	.55



No. 3095.

3093.	Sloping Tile, 3 divisions, $2\frac{1}{2} \times 4$ in.....	each	\$ .15
3094.	" 4 " $3\frac{1}{8} \times 7\frac{3}{4}$ " .....	"	.30
3095.	" 5 " $3\frac{1}{8} \times 7\frac{3}{4}$ " .....	"	.35
3096.	" 6 " $3\frac{1}{8} \times 7\frac{3}{4}$ " .....	"	.40
3097.	" 8 " $6 \times 7\frac{5}{8}$ " .....	"	.50
3098.	" 10 " $6 \times 7\frac{5}{8}$ " .....	"	.55
3099.	" 12 " $6 \times 7\frac{5}{8}$ " .....	"	.65

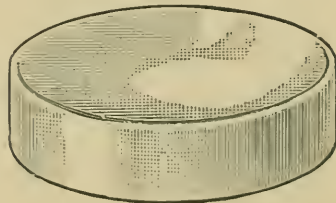
CHINA AND GLASSWARE.



No. 4000.

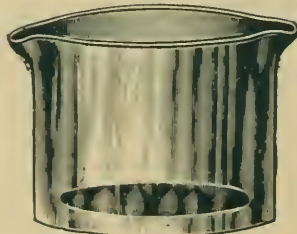
4000.	Nest of Cabinet Saucers, 6 in set,	$2\frac{3}{8}$ in	..... set	\$ .55
4001.	“ “ 6 “	$2\frac{5}{8}$ “	..... “	.65
4002.	“ “ 6 “	$3\frac{1}{4}$ “	..... “	.75
4003.	“ “ 6 “	$3\frac{3}{4}$ “	..... “	.90
4004.	“ “ deep 4 “	$2\frac{5}{8}$ “	..... “	.75
4005.	“ “ 4 “	$3\frac{1}{4}$ “	..... “	.90
4006.	“ “ 4 “	$3\frac{3}{4}$ “	..... “	1.10

A “Nest of 6” consists of 5 saucers and cover; a “Nest of 4” of 3 saucers and cover..



No. 4008.

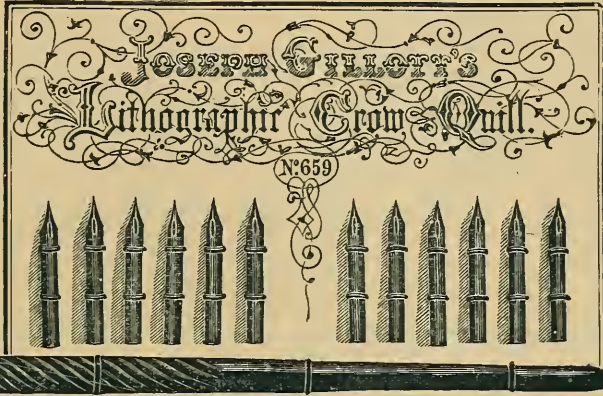
4008.	China Color Cups .....	$2\frac{1}{2}$	3	$3\frac{1}{2}$ in. diam.
	Each .....	\$ .08	.10	.20



No. 4010.

4010.	Artists' Water Glass, $2\frac{3}{5}$ in. diam	..... each	\$ .15
4011.	“ “ $3\frac{1}{4}$ “	..... “	.25
4012.	“ “ $3\frac{3}{4}$ “	..... “	.30
4013.	“ “ $4\frac{1}{4}$ “	..... “	.35

STEEL PENS FOR DRAWING.

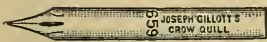


(About 3/8 Actual Size.)

To GILLOTT'S PENS were awarded the GRAND PRIZE  
and GOLD MEDAL at PARIS EXPOSITION. 1900.

No. 4014.

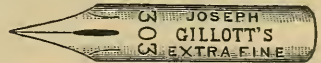
4014. Gillott's Crow Quill Pens (659) on cards  
with holder ..... per gross \$6.00 per dozen \$ .60



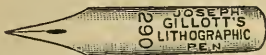
No. 4015.



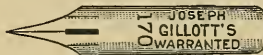
4017.



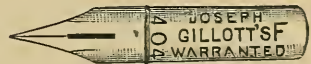
4019.



No. 4016.



4018.



4020.

4015.	Lithographic Crow Quill (659).....	per gross	\$6.00	per dozen	\$ .60
4016.	" Pens, on dozen cards (290)	"	6.00	"	.60
4017.	Mapping Pens " (291)	"	6.00	"	.60
4018.	" " (170)	"	1.00	"	.10
4019.	" " (303)	"	1.40	"	.15
4020.	" " (404)	"	1.00	"	.10



No. 4021.

4021. Double-line Ruling Pen ..... per gross \$2.25 per dozen \$ .25

This pen makes two lines at once, and is especially adapted for architects, engineers and draughtsmen.

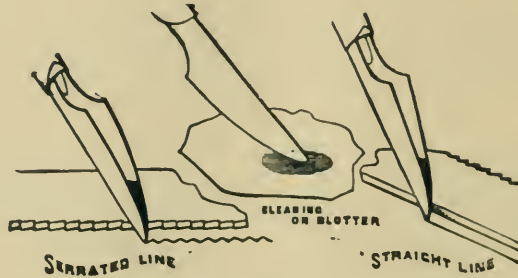


No. 4022.

4022. Improved Crow Quill Penholder, without Pen ..... each \$ .10

A holder for Crow Quill Pens of the thickness of an ordinary penholder.

## GISBURNE'S RULING PENS.



No. 4023.

4023. Six pens on a card; fine, medium and coarse..... per card \$ .50



No. 4024.

4024. Automatic Shading Pens, width of nib,  $\frac{1}{16}$ ,  $\frac{1}{8}$ ,  $\frac{3}{16}$ ,  $\frac{1}{4}$ ,  $\frac{3}{8}$ ,  $\frac{1}{2}$ , in. . each \$ .20

## AUTOMATIC SHADING PEN INK.

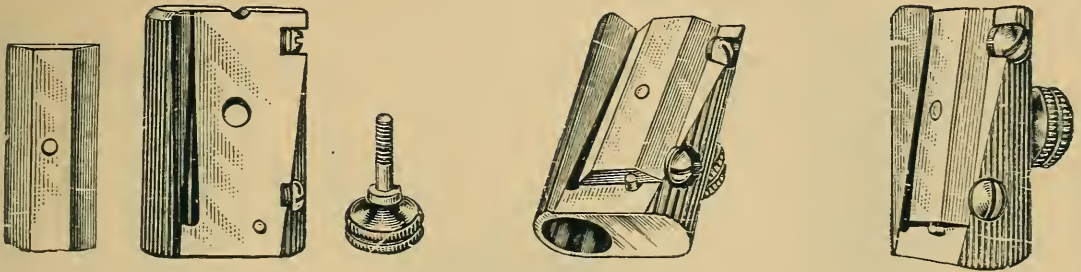
4025.  $1\frac{1}{2}$ -oz. Bottles, Red, Green, Blue, Black, Brown, Crimson, Violet and Yellow..... each \$ .25

## ALPHABET BOOKS.

SPECIALLY ADAPTED FOR ENGINEERS AND ARCHITECTS.

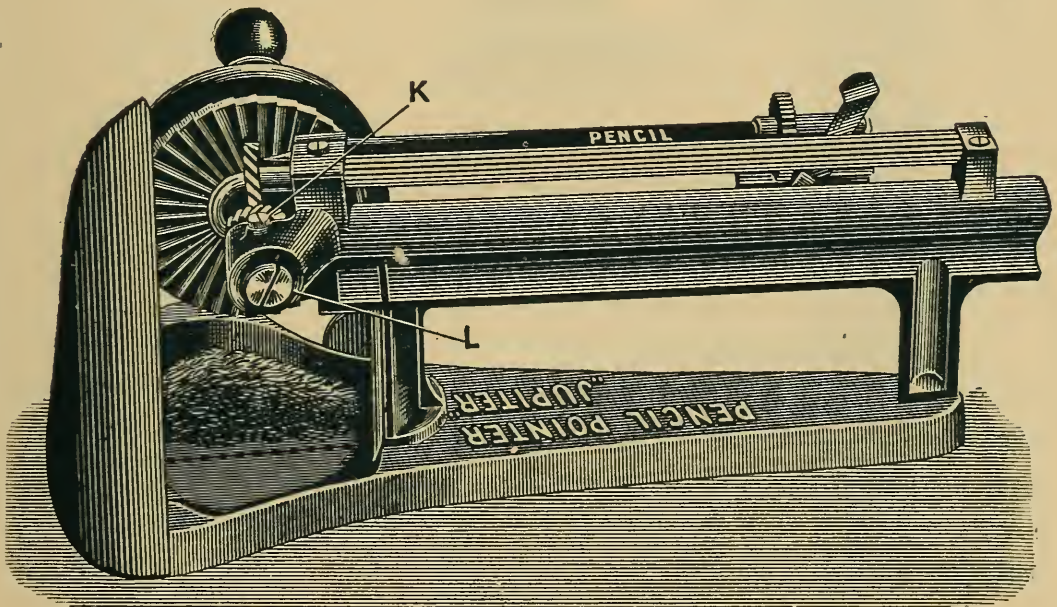
4026. Book of Modern Alphabets..... each \$ .25  
 4027. Cromwell's System of Easy Lettering ..... " .50  
 4028. Reinhardt's Lettering ..... " 1.00  
 4029. Fish's Lettering of Working Drawings..... " 1.00  
 4030. Prang's Standard Alphabets..... " 2.50

# PENCIL POINTERS.



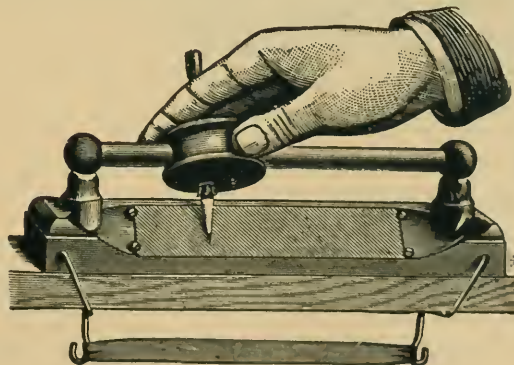
No. 4031.

4031. Royal Pencil Pointer, with a double-edged reversible blade... each \$ .25



No. 4032.

4032. Jupiter Pencil Pointer..... each \$10.00

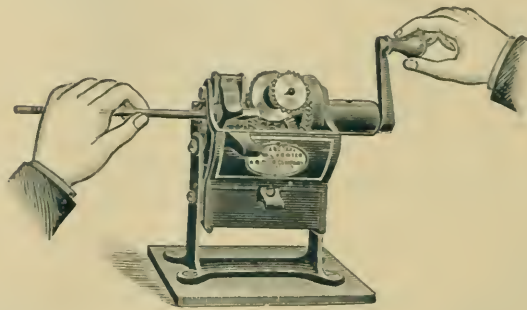


No. 4033.

4033. Perfect Pencil Pointer..... each \$1.00

## PENCIL SHARPENER.

Adapted for use in banks, offices, schools, stores, draughting-rooms and private residences.

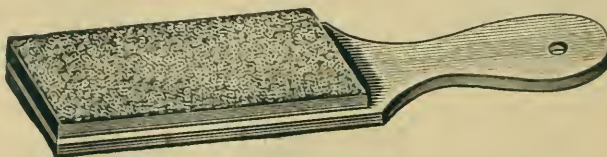


The Planetary.

No. 4034.

4034. Planetary Pencil Sharpener ..... each \$4.50

The Double Planetary System of Pencil Pointing is the only system by which a perfect point can be made on all kinds, grades and sizes of lead pencils, slate pencils, various colored pencils, wax crayons, watchmakers' pegwood, etc. The only system using no sand-paper, files or knives. The double planetary motion of the cutters absolutely prevents the breaking of the points. In construction the machine is simple, substantial, durable and neat. It requires no adjustment whatever, and is cleanly and rapid in its operation.



No. 4037.

4035. Pencil Pointer,  $1\frac{1}{4} \times 4$  in ..... each \$ .10

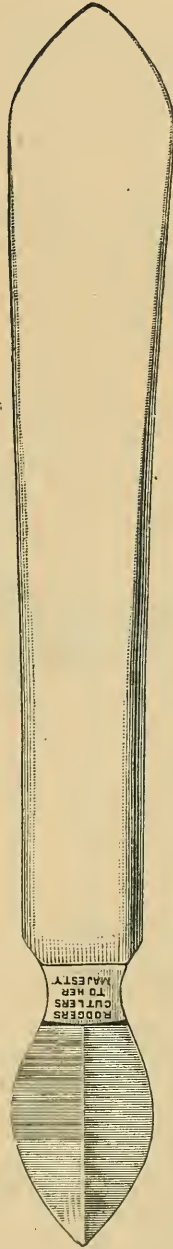
4036. " "  $2\frac{1}{2} \times 4$  " ..... " .15

4037. " "  $1\frac{1}{4} \times 4$  " with handle ..... " .15

Above Pencil Pointers consist of a number of sheets of flint paper made into a block.



STEEL ERASERS.



No. 4038.

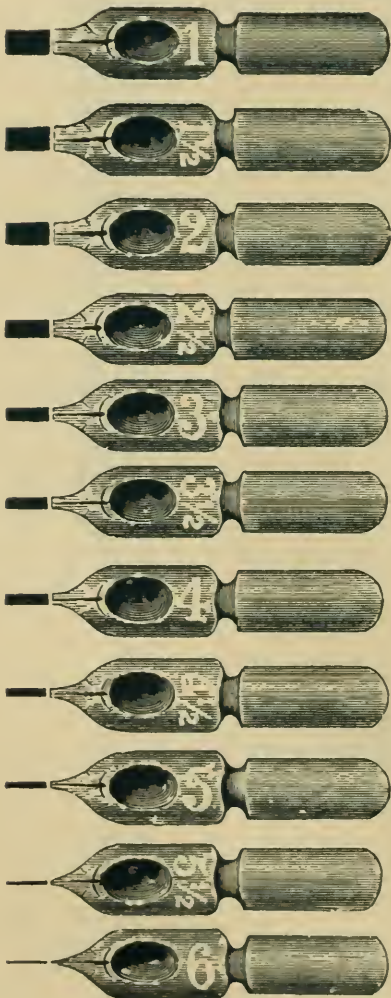
4039.

4040.

4038.	Cocoa Handle	.....	each	\$ .75
4039.	Bone	.....	"	.80
4040.	Ebony	.....	"	.90
4041.	Bone	.....	"	1.00

## ROUND WRITING.

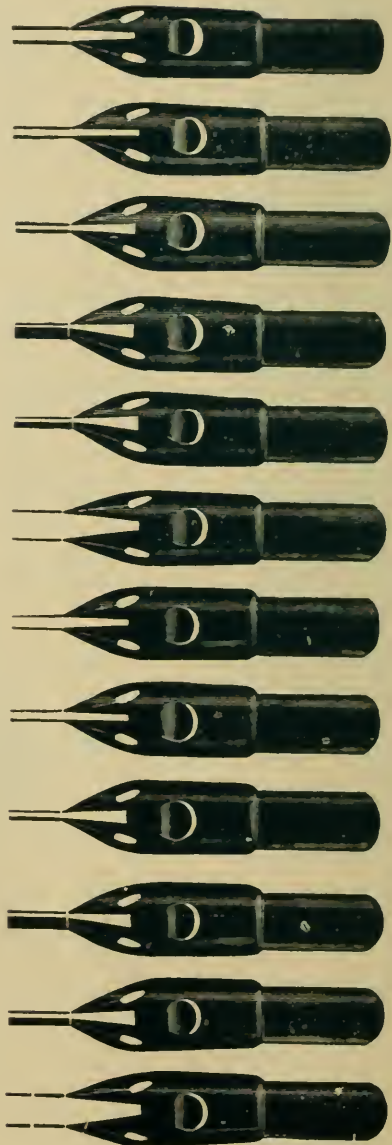
4042. Methodical Text-book to Round Writing  
by F. Soenneken, including an assort-  
ment of 25 single and double pointed  
pens . . . . . each \$1.00      post paid \$1.10
4045. Copy Book without instructions (School  
Ed.), including an assortment of 25  
single and double pointed pens. . . . . “      .70      “      .80



No. 4048.



No. 4051.



4049.

**ROUND WRITING.**

4048. Single Pointed Pens, Nos. 1, 1½, 2, 2½, 3, 3½, 4, 4½, 5, 5½, 6, any one number . . . . . per ¼ gross \$ .25 post paid \$ .31

4049. Double Pointed Pens, Nos. 10, 20, 30, 60, 70, 80, 90, 100, 110, 120, any one number . . . . . " .65 " .71

Every ¼ gross box contains Pens of one number only.

4050. Sample assortment of Single and Double Pointed Pens . . . . . 25 in a box \$ .35 post paid \$ .41

4051. Inkholder to be applied to Round Writing Pens, specially for writing with India and Autograph Ink . . . . . per box of 6 .30 each .10



No. 4052.

4052. Round Writing Instrument, complete with 9 minute pens . . . . . each \$1.00 post paid \$1.10



No. 4053.

4053. Minute Pens for above . . . . . per dozen \$ .75 each \$ .10

With this instrument 2 or 3 parallel lines can be made with one motion. It is used exactly in the same manner as the above single and double round writing pens.

The accompanying 9 minute pens admit of producing 144 different double and 504 different triple lines, by changing or interchanging the pens in the different places in the holder.

4054. Penholders for Round Writing Pens . . . . . each \$ .10

4055. Double Penholders for Round Writing Pens . . . . . " .10

4056. Parcel Pens, in 4 widths, for bold and large lettering.

Nos.	F.	M.	B.	BB.		
	7	7	13	19	in. wide . . . . .	“ .25
	100	50	50	50		

# RUBBER ERASERS.

## INK AND PENCIL.

The Rubber is of the Highest Quality. The Shells are Polished Wood.



No. 4058.



4059.



4060.

4058.	Large size .....	each	\$ .25
4059.	Medium size .....	"	.15
4060.	Small size .....	"	.10

## TYPEWRITER.



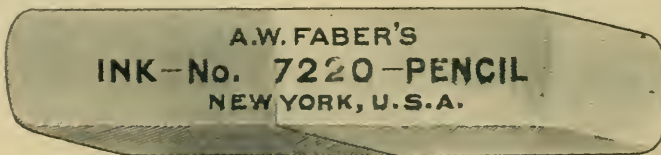
No. 4061.

4061.	Small size .....	each	\$ .05
-------	------------------	------	--------



No. 4062.

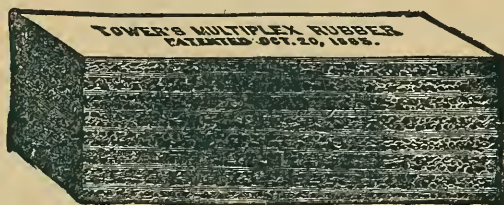
4062.	Large size .....	each	\$ .10
-------	------------------	------	--------



No. 4063.

4063.	Ink and Pencil Eraser .....	each	\$ .10
-------	-----------------------------	------	--------

**TOWER'S MULTIPLEX.**



No. 4064.

4064. Tower's Multiplex. 12, 20, 30 and 40 pieces to the lb. . per pound \$2.50  
Per piece .. ..... 25c, 15c, 10c, 8c.

**SPONGE RUBBER.**

For Cleaning Drawings, Engravings, Crayons, etc.



No. 4065.

4065.	1 × 1 × 1	inches	.....	each	\$ .15
4066.	2 × 2 × 1	"	.....	"	.30
4067.	4 × 2 × 1	"	.....	"	.60
4068.	6 × 4 × 1	"	.....	"	1.80
4069.	1 × 1½ × 1	"	.....	"	.20

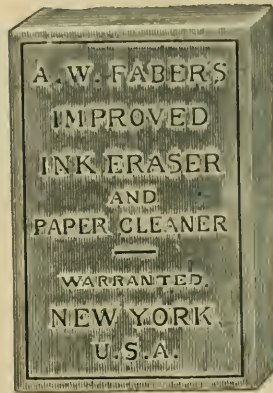
**HARDTMUTH'S NEW PLIABLE.**



No. 4070.

4070.	Hardtmuth's New Pliable.	8, 12, 16, 20, 30 and 40 pcs. to box. .	Per box	\$2.00
	Per piece.....	27c, 20c, 15c, 12c, 8c,	7c.	

**RUBBER ERASERS.**



4071. Large size.....each \$ .15  
 4072. Small "....."



No. 4073.

4073. Faber's Artists' 4, 8, 16, 30, 40, pieces to the box, per box .... \$1.75



No. 4074.

4074. Large size.....each \$ .10



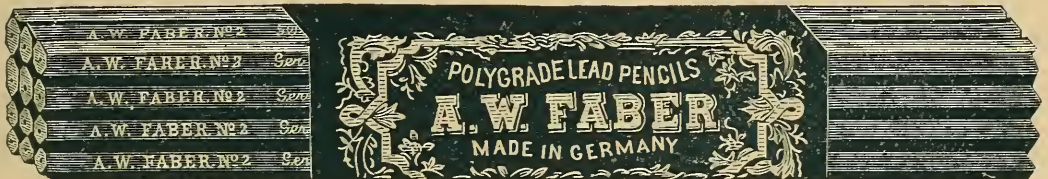
No. 4075.

4075. Small size, green rubber.....each \$ .05

# LEAD PENCILS.

## A. W. FABER'S PENCILS.

For Designers, Artists and Architects. For Office and School Use.



No. 4081.

### Explanation of Grades.

The different grades of hardness here enumerated have been universally adopted by artists. The degree of the lead, as indicated upon each pencil, does not vary. The lead is of great purity and uniformity, and can be readily removed with rubber.

Grading for  
Drawing Pencils.

Grading for Commercial  
and School Pencils.

- |         |  |        |
|---------|--|--------|
| BBBBBB. | Softest and blackest.  |        |
| BBBBB.  | Extra soft and extra black, for rich, deep shading.              |        |
| BBBB.   | Very soft and very black, for rich, deep shading.                |        |
| BBB.    | Very soft, for very deep shading.                                |        |
| BB.     | Soft and black, for deep shading.....                            | No. 1. |
| B.      | Soft, for ordinary shading.                                      |        |
| HB.     | Medium soft, for fine sketching... ..                            | No. 2. |
| F.      | Firm and medium hard, for fine drawing .....                     | No. 3. |
| H.      | Moderately hard, for light sketching.                            |        |
| HH.     | Hard, for fine outline drawing.....                              | No. 4. |
| HHH.    | Very hard, for architectural drawing.                            |        |
| HHHH.   | Extra hard.....  | No. 5. |
| HHHHH.  | Extra extra hard, for drawing on wood, and for accountants' use. |        |
| HHHHHH. | Hardest, for drawing on wood, and for accountants' use.          |        |

### SIBERIAN.

Hexagon, Natural Polished, Fourteen Degrees of Hardness.

- |       |   |           |        |
|-------|---|-----------|--------|
| 4078. | BB, B, F, HB, H, HH, HHH, HHHH, HHHHH, HHHHHH ..... | per dozen | \$1.25 |
| 4079. | BBB, BBBB, BBBBB .....                              | "         | 1.40   |
| 4080. | BBBBBB .....  | "         | 1.50   |

### HEXAGON GILT.

An Excellent, First Quality Pencil for ordinary use. Hexagon, Dark Red Polished, Five Degrees of Hardness.

- |       |                             |           |        |
|-------|-----------------------------|-----------|--------|
| 4081. | Nos. 1, 2, 3, 4 and 5 ..... | per dozen | \$ .60 |
|-------|-----------------------------|-----------|--------|

**RED POLISHED, GOLD STAMP WITH IVORY HEADS.**



No. 4082.

4082. 6 in. long, Nos. 1, 2, 3, 4, 5 and 6. . . . . each \$ .25

**SIBERIAN ARTISTS'.**



No. 4084.

With Movable Leads, Hexagon, Natural Polished, Gold Stamp.

4084. 6½ in. long, with double ends, F to HH. . . . . each \$ .35

4085. 6½ " " " BB to HB. . . . . " .35

**PENCIL HOLDER.**



No. 4086.

4086. Holder for Pencil Stumps, hexagonal metal ferrule . . . . . each \$ .10

**KOH-I-NOOR PENCILS.**



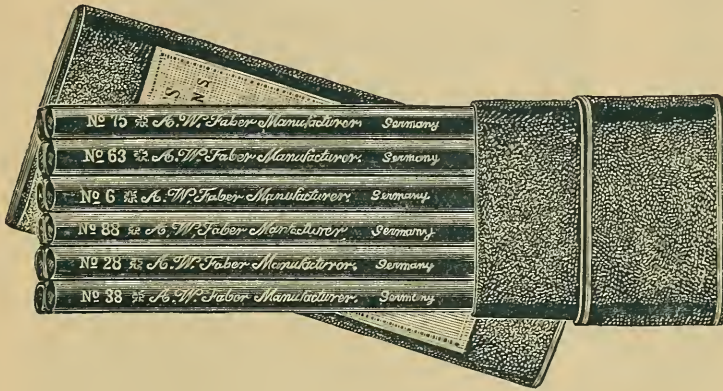
No. 4088.

4088. Hardtmuth's Koh-i-noor Nos. BBBB, BBB, BB, B, HB,  
F, H, 2 H, 3 H, 4 H, 5 H, 6 H, 7 H, 8 H. . . . . per dozen \$1.25

By a New Process of Manufacture the graphite assumes a highly compressed form, which secures for it remarkable lasting qualities, the pencil point remaining sharp for a surprisingly long time. For the draughtsman and others, where the preservation of a fine point is of importance, the Koh-i-noor Pencils and Leads will be found invaluable.



WAX CRAYONS.



No. 4090.

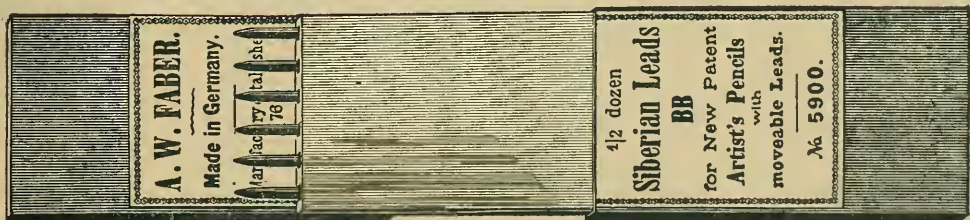
4090. A. W. Faber's Wax Crayons in boxes,

6 12 18 24 36 48 assorted colors.

Per box.....\$ .50 1.00 1.50 2.00 2.50 3.25

An extra fine grade of colored pencil, made of the finest colors, for drawing or sketching.

SIBERIAN LEADS.



No. 4092.

4092. Siberian Leads, 6 in a box, 2 B, B, HB, F, H, 2 H, 3 H,

4 H, 5 H, 6 H ..... per box \$ .60

## ERASING SHIELDS.



No. 4094.

4094. Nickel Plated Erasing Shields  $2\frac{3}{8} \times 3\frac{3}{4}$  in. .... each \$ .20

NEW DEVICE gives better use of HAND and RUBBER. Equally good for erasing in last line of any work and any line of open space work. For the latter, place as for use in last line and bear upward with rubber. No need to rub a hole in the paper by erasing through a slot; USE THE EXTENSION.

Transparent Celluloid; can be washed like a dish. No stain from metal to be erased after the ink is gone. Can see right through; no trouble to find the place when making alterations. <sup>(Erase here)</sup> JUST TRY IT.

No. 4095.

4095. Celluloid Erasing Shields  $2\frac{1}{2} \times 4\frac{1}{2}$  in. .... each \$ .15

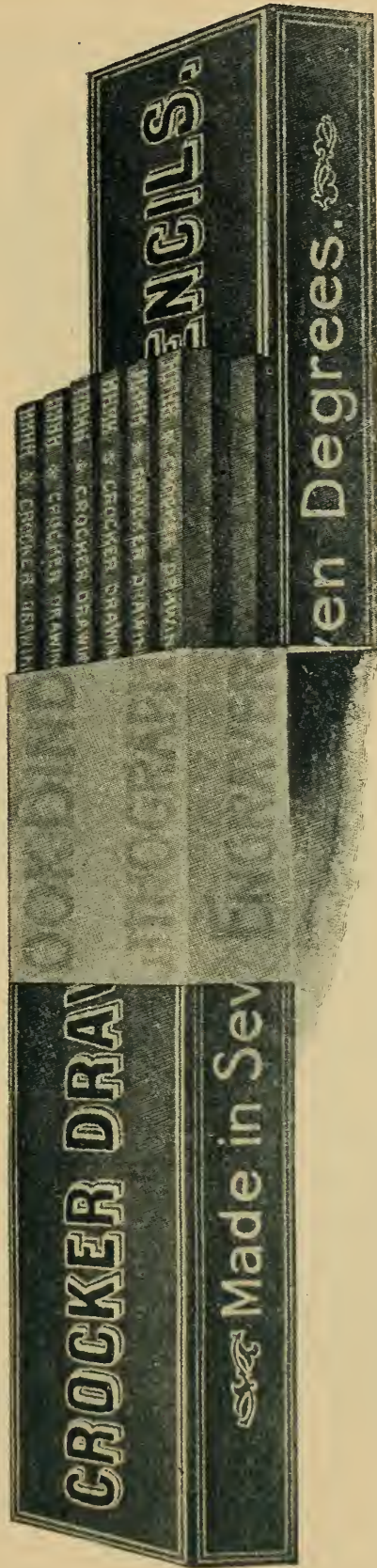


No. 4096.

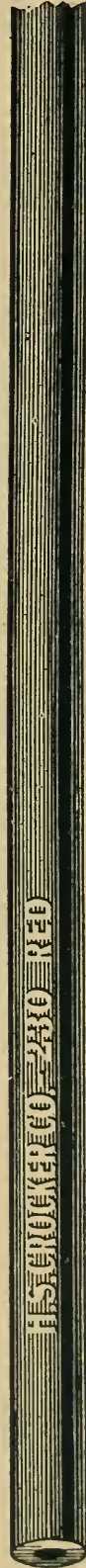
4096. Celluloid Erasing Shields  $3\frac{1}{2} \times 5$  in. .... each \$ .25

# CROCKER DRAWING PENCILS.

The compressed lead in our drawing pencils is as good as is used in the highest priced drawing pencils made. The grading is absolutely correct. The finish is in yellow and hand polished.



5005. Crocker's Drawing Pencil. A pencil particularly adapted for artist, school and office use, in seven grades, B-HB, F, H, 2H, 3H, 4H, 6H..... per dozen \$ .60



5006—230.	Red, round, polished.....	per dozen	\$ .60
5008—231.	Blue, ".....	"	.60
5010—232.	Green, ".....	"	.60

LUMBERMEN'S PENCILS.



No. 5012.



No. 5013.

For Marking Timber. The lead is extra thick and will mark on damp wood. Round, Green Polished, 7 inches long.

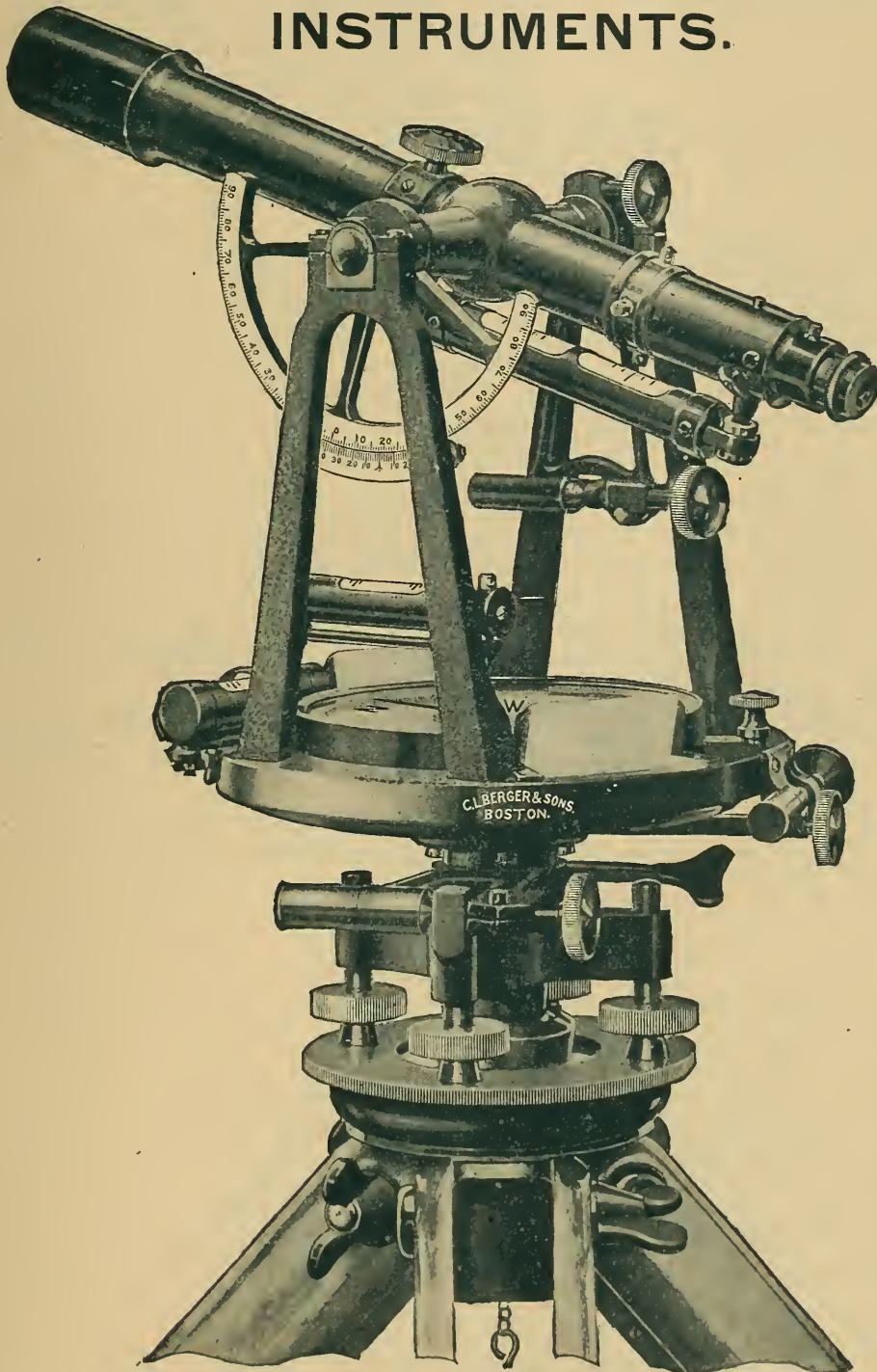
	Per dozen.
5012. Faber's Lumbermen's Pencils.....	\$ 1.00
5013. Black Timber Crayons.....	.65
5014. Blue " ".....	.65
5015. Red " ".....	.65

H. S. CROCKER COMPANY

SAN FRANCISCO  
AND  
SACRAMENTO

We are agents for C. L. BERGER & SONS

## SURVEYING AND ENGINEERING INSTRUMENTS.



No. 5040.

5040. Berger's Complete Engineers' & Surveyors' Transit.—The 5'' vertical arc is provided with double verniers reading to minutes. Price, as above, with cloth finish standards..each \$225.00

## Berger's Engineers' and Surveyors' Transit.

This instrument is designed for engineering work of a high class, such as is required in bridge building, water works, and for city and land surveying. The size of the circle is such that it may be graduated to read to 30 inches without fatigue to the eye. The telescope is of the best definition, and has a large aperture with perfectly flat field. The eye-piece is achromatic and gives a large field with plenty of light. We advise our customers to order solid silver graduations for the instrument.

**Specifications:** Horizontal circle  $6\frac{1}{2}$  inches (edge of graduation); two double verniers reading to minutes; two rows of figures in opposite directions from  $0^{\circ}$  to  $360^{\circ}$ ; figures on limb and verniers are inclined in the direction they should be read; verniers and graduations are protected with fine plate glass and provided with glass shades; graduations are silvered; magnetic needle  $4\frac{1}{2}$  inches; adjustment for vertical plane of telescope; improved spring tangent screw; shifting center to set the instrument exactly over a given point; improved telescope  $11\frac{1}{2}$  inches long, objects erect; aperture  $1\frac{1}{4}$  inches; power of telescope 24 diameters which qualifies it especially for telemeter work; eye-piece is provided with an improved screw arrangement for the accurate focusing of cross wires; telescope is perfectly balanced and reverses at both ends; spirit levels ground and extra sensitive; line of collimation correct for all distances without adjustable object slide; protection to object slide; long compound centers with heavy flanges; improved split leg tripod provided with thumb nuts.

The mahogany case has a leather strap, hooks, etc. It contains a sunshade, wrench, screw driver, plumb bob, magnifying glass, adjusting pin, and weighs from  $9\frac{1}{2}$  to 10 lbs.

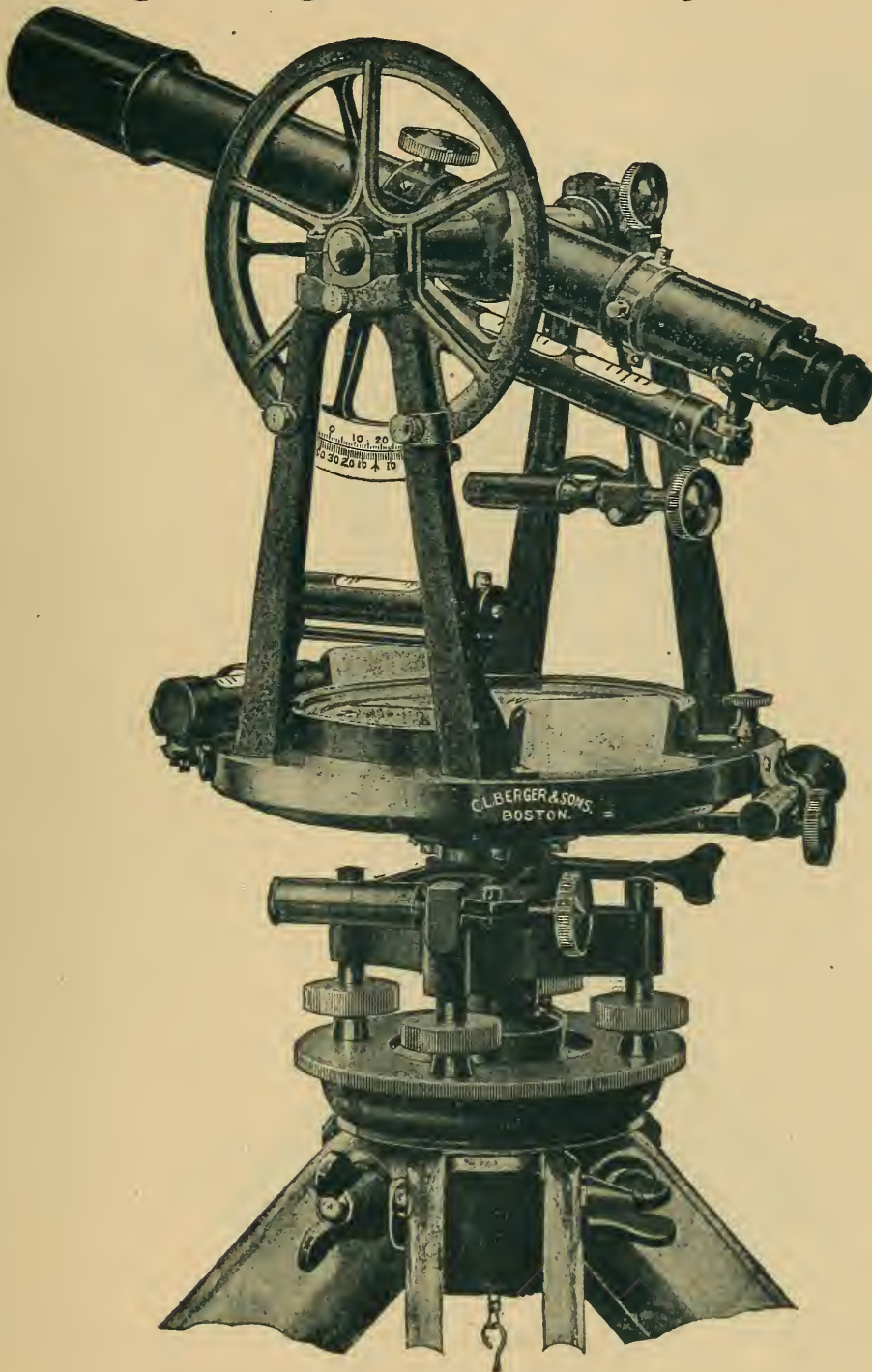
Weight of complete Transit  $14\frac{1}{2}$  lbs. Tripod weighs from 7 to  $7\frac{1}{2}$  lbs. Gross weight, packed securely for shipment in 2 boxes, about 50 lbs.

### EXTRAS TO TRANSITS.

Graduation of horizontal circle on solid silver.....	\$10 00
Graduation of horizontal circle reading to 30 inches.....	10 00
Graduation of vertical arc or vertical circle on solid silver.....	5 00
Gradiënter attachment.....	5 00
Fixed stadia wires.....	3 00
Prism and colored glass.....	8 00
Variation plate.....	10 00
Silk hood to cover transit in case of rain or dust.....	1 00
Bottle of fine watch oil to lubricate the centers, etc. of Transit.....	25

All our Transits are provided with a fine punch mark on top of telescope to enable to center from a point above.

Berger's Engineers' and Surveyors' Transit.



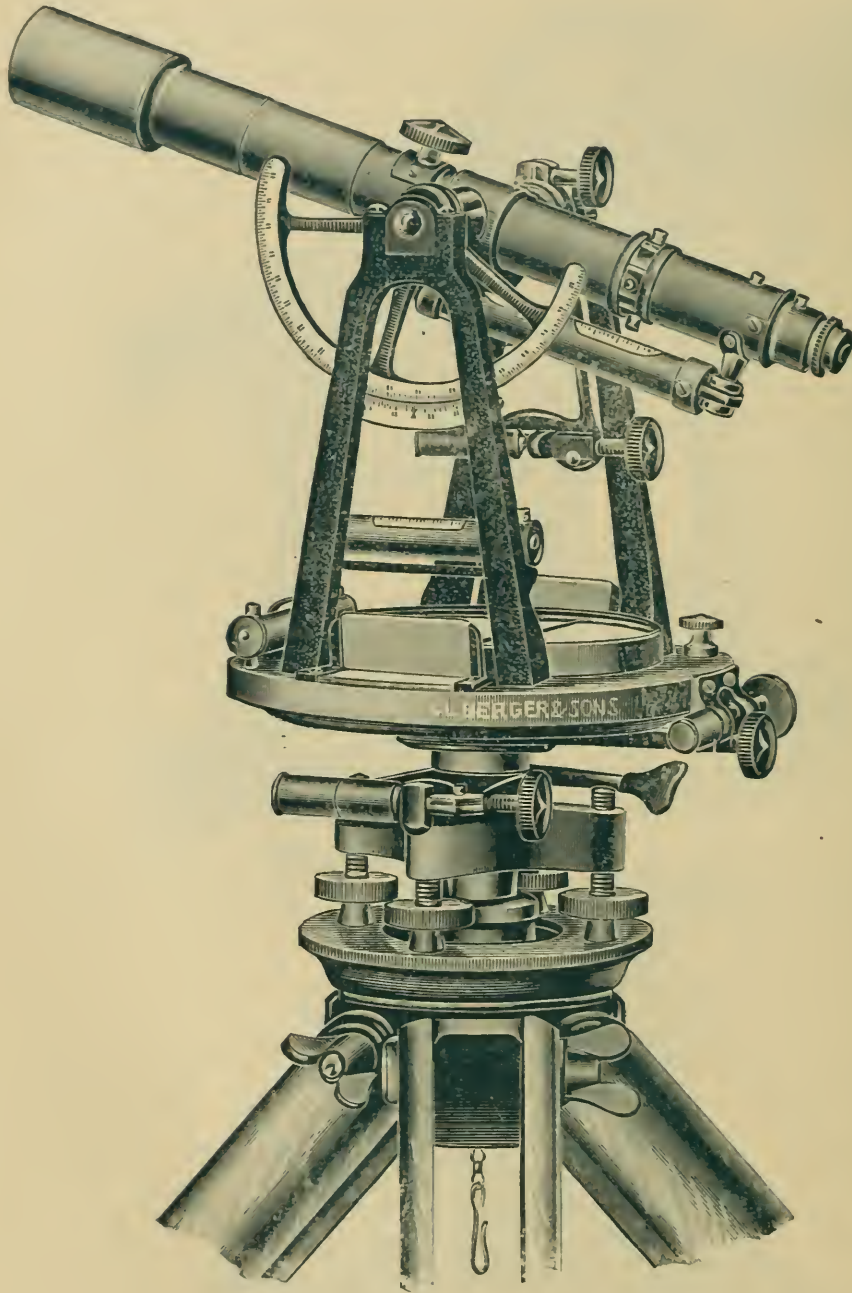
No. 5042.

5042. Berger's Complete Engineers' and Surveyors' Transit.—The 5 in. vertical circle is provided with double verniers reading to minutes.

Price, as above, standards cloth finished, with vernier shades, aluminum guard for vertical circle. . . . . each \$237.00

Copyrighted, 1904

Berger's Engineers' and Surveyors' Transit.



No. 5044.

5044. Berger's Small Complete Engineers' and Surveyors' Transit.

Price, as above, with standards cloth finished . . . . . each \$225.00

Horizontal verniers will be placed at 35° to line of sight, unless ordered to be as in cut.



## Berger's Small Engineers' and Surveyors' Transit.

The essential features of this instrument are like those enumerated under No. 5040, with the exception of size and weight. It is designed to be used in cases where a lighter instrument is desirable. All the parts, the graduations, telescope, etc. are made with as great care as in the larger instruments made by C. L. Berger & Sons. We can recommend it as being a every reliable and superior instrument for railroad work, for general land surveying and for mining purposes.

**Dimensions:** Horizontal limb, 5 inches; magnetic needle,  $3\frac{3}{4}$  inches; telescope, 9 inches; clear aperture,  $1\frac{1}{8}$  to  $1\frac{1}{4}$  inch; power, 18 diameters.

Mahogany case has leather strap, hooks, etc., and contains usual accessories, weighing 7 lbs.

Weight of instrument, 10 lbs; weight of tripod,  $6\frac{1}{2}$  to 7 lbs.

Gross weight, packed for shipment in 2 boxes, about 40 lbs.

### EXTRAS TO TRANSIT.

Graduation of horizontal circle on solid silver.....	\$10 00
Graduation of horizontal circle reading to 30 inches.....	10 00
Graduation of vertical arc or vertical circle on solid silver.....	5 00
Gradienter attachment.....	5 00
Stadia wires, fixed.....	3 00
Prism and colored glass.....	8 00
Variation plate.....	10 00
Silk hood to cover transit in case of rain or dust.....	1 00
Bottle of fine watch oil to lubricate the centers, etc. of Transit.....	25

All our Transits are provided with a fine punch mark on top of telescope to enable to center from a point above.

### “INSIDE POINTS” FOR WYE LEVELS.

Center of instrument made of steel and hardened, and running in socket of cast iron, improved style.....	\$15 00
Fixed stadia wires.....	3 00

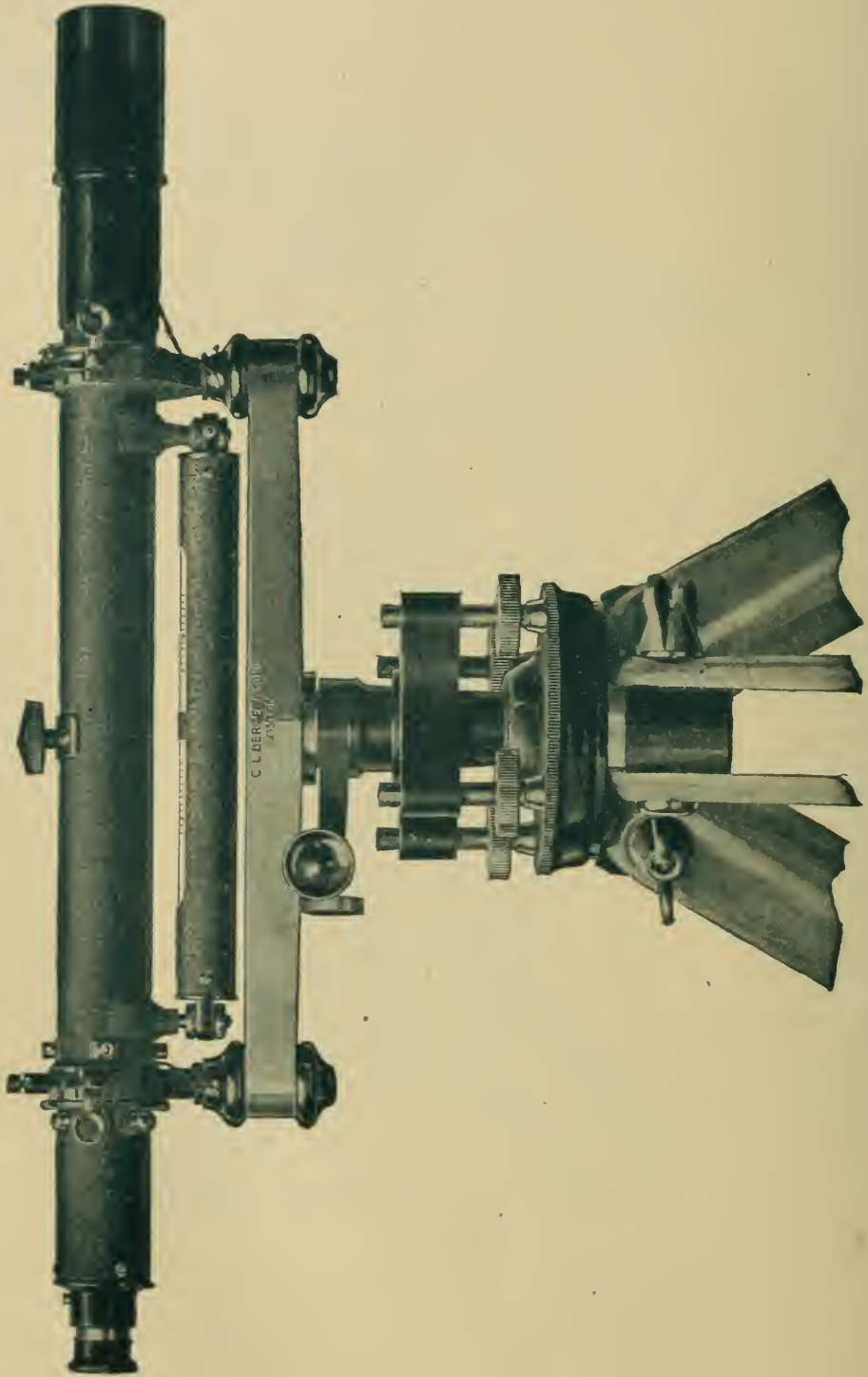
We must be informed when the order is placed when these features are desired.

H. S. CROCKER COMPANY

SAN FRANCISCO  
AND  
SACRAMENTO

**Berger's Engineers' 18-Inch Wye Level.**

(POWER, 35 DIAMETERS.)



No. 5046.

*Copyrighted, 1904.*

## Berger's Engineers' 18-Inch Wye Level.

### Leveling Instrument of Precision.

This Level is made by C. L. Berger & Sons, of Boston, Mass., and the manufacture is the highest quality in the country. The lenses, levels, and all materials are of the finest, and the instrument is guaranteed to be up to the highest standard, being made as fully described and illustrated by them.

**Specifications:** Eighteen-inch powerful telescope, with cloth finish; aperture of object glass,  $1\frac{3}{8}$  inches in diameter; field of view, large and flat; telescope provided with an adjustable stop to readily set cross wires horizontal and perpendicular; line of collimation true on all distances; objects erect; telescope balanced each way from the center when focussed to a mean distance with sunshade attached to secure the highest accuracy attainable; telescope rings and the center are very stout, long and of the hardest bell metal; cross-bar is cast hollow and provided with ribs; 8-inch very sensitive spirit level; instrument does not detach from tripod above leveling screws; it packs whole and stands in the case erect. Mahogany case is provided with straps and hooks, contains sunshade, wrench, screw driver, and adjusting pin.

Weight of instrument, 11 lbs.; weight of tripod, from 7 to  $7\frac{1}{2}$  lbs.

Gross weight of instrument packed securely for shipment in two boxes about 48 lbs.

PRICE, including protection to object slide.....\$140 00

### EXTRAS TO ENGINEERS' WYE LEVEL.

Gossamer waterproof bag, to protect instrument in case of rain or dust...\$1 00  
Bottle of fine watch oil to lubricate the level center..... 25

## GENERAL DESCRIPTION OF TRANSITS AND LEVELS.

**The Upper and Lower Plates** of our Transits are substantial ribbed castings, and although they weigh about 20 per cent less than the plates in the old style instruments they give the instrument a high grade of stiffness and stability. The Standards of our Transits, No. 5056, etc., are bent; they have their legs well spread and set close to the compass box for the purpose of obtaining the possibly shortest axis to telescope and to increase their strength. Transits with straight Standards, see No. 5066, etc.

**Centers.** The long compound centers have heavy flanges and are fitted very accurately in each other; they give the whole instrument an uncommon rigidity and stability. They are made of three different kinds of metal to reduce friction.

**Leveling Screws.** All our Transits (unless ordered with **three leveling screws**) have a **four-arm piece**, and are provided with a **shifting plate**, which device allows the shifting of the instrument within about one inch after it has been brought in position.

**The Leveling Centers** in our Transits and Levels, which receive the leveling screws are slotted and can be adjusted by means of the set screws, and made uniform under all conditions of wear and temperature, which arrangement dispenses with the dust caps.

**The Spirit Levels** are extremely sensitive and carefully selected for each instrument.

**Clamp and Tangent Screws.** The clamps for limbs and centers are all provided with improved micrometer tangent screws, permitting a very fine adjustment of the plates. The screws are made of hard metal, and the clamps are provided with counter-springs to take up dead motion.

**Gradienter Attachments** (for distance measurements) will be furnished with our instruments whenever required.

The Gradienter is a special tangent screw attached to the clamp of the telescope axis; it is divided into 50 parts, one complete revolution of the screw corresponding to one foot in fifty feet distance; fractions of one foot being easily read by the divisions of the screw.

**Graduation.** For the purpose of obtaining very sharp and distinct graduations, we attach to the top of the lower plate a ring of hard-rolled metal, which is silvered, but this ring can also be made of solid silver if so ordered.

The utmost care is given to the correct centering and graduating of the horizontal and vertical circles, and all graduations are warranted to be perfectly accurate.

The horizontal limb is numbered as follows: the outer row from 0°-360°; the inner row from 0°-180° and back, as cut on next page will show, and has two opposite double-fold verniers marked **A** and **B**, which are placed at about 30 degrees with the telescope and are protected by glass covers. (The verniers can be set at right angle with the telescope if so ordered.) Ground glass shades will be attached to the verniers if ordered.

The following are the various graduations for horizontal limbs:

Limb divided to 30 minutes, reading by verniers = single minutes.

“	“	20	“	“	“	=30 seconds.
“	“	20	“	“	“	=20 “
“	“	10	“	“	“	=10 “

Price of special graduations, see extras, page 260.

The vertical arc or circle is invariably divided on **solid silver** and marked from 0°-90° in quadrants, and usually graduated to 30 minutes reading by vernier to single minutes; but can be graduated to correspond with the divisions of the horizontal limb if desired.

**The Compass** in our instruments is graduated to half degrees and marked in quadrants from 0°-90°, and is provided with a very sensitive needle, set in an agate center. (For correcting the local deviation of the needle, a variation plate can be furnished, see extras, page 260.)

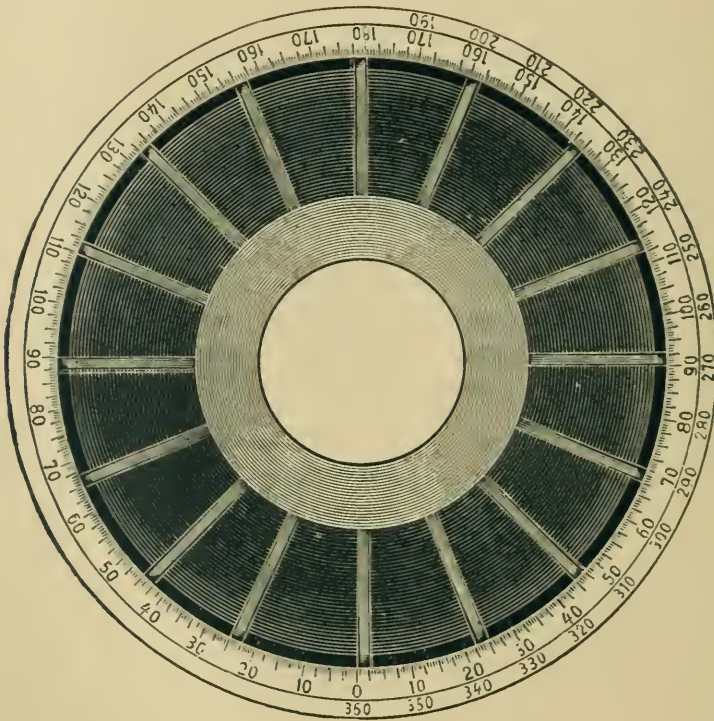
**The Telescope.** The best obtainable lenses are used in our telescopes, which are constructed so as to obtain a large flat field with abundant light. The eyepiece, which is adjustable, is provided with a shutter, the objective with cap and sunshade. The object slide is protected by a dust guard, and, like the eyepiece, has rack and pinion for focusing. The telescope slides fit snugly and move positively straight, and the line of collimation is correct for all distances. The telescope is well balanced and is reversible from both ends and has clamp and tangent screw for vertical adjustment. The screws operating the rack and pinion movement of eyepiece and objective are placed on top of the telescopes to be accessible for either hand. The magnifying power of our telescope is about 24 diameter, which we found the best with regard to field and definition.

**The Cross and Stadia Wires** in our telescopes are of the best quality of spider threads; they are reliable under all atmospheric conditions. Stadia Wires are furnished only with Transits, which have full vertical circle, but can be put in the telescopes of any arc or plain Transits if so ordered. All Stadia Wires are set to read on a leveling rod exactly one foot for a distance of 100 feet, but are adjustable for any other distance.

**The Finish of our Transits** is very durable. We bronze all Instruments dark, unless otherwise ordered.

**Tripods and Cases.** The head of the Tripod is cast in one piece and has a strong screw thread for mounting the Instrument, and is provided with a screw cap to protect the thread from injury while being transported. We furnish with each Instrument either a solid leg Tripod or the so-called split leg Tripod. (For illustration of the Tripods, see page 276.) Strong, neatly fitting carrying cases with lock, key and leather strap are furnished with each Instrument, also plumb bob, adjusting pins and magnifying glass. To protect the instrument from jarring, the bottom of the case is provided with rubber cushions.

**Repairs.** As it is impossible to give an estimate for repairs without having the instrument taken apart, and have every part carefully examined, we advise customers to send their instruments to us for examination. We will, in every



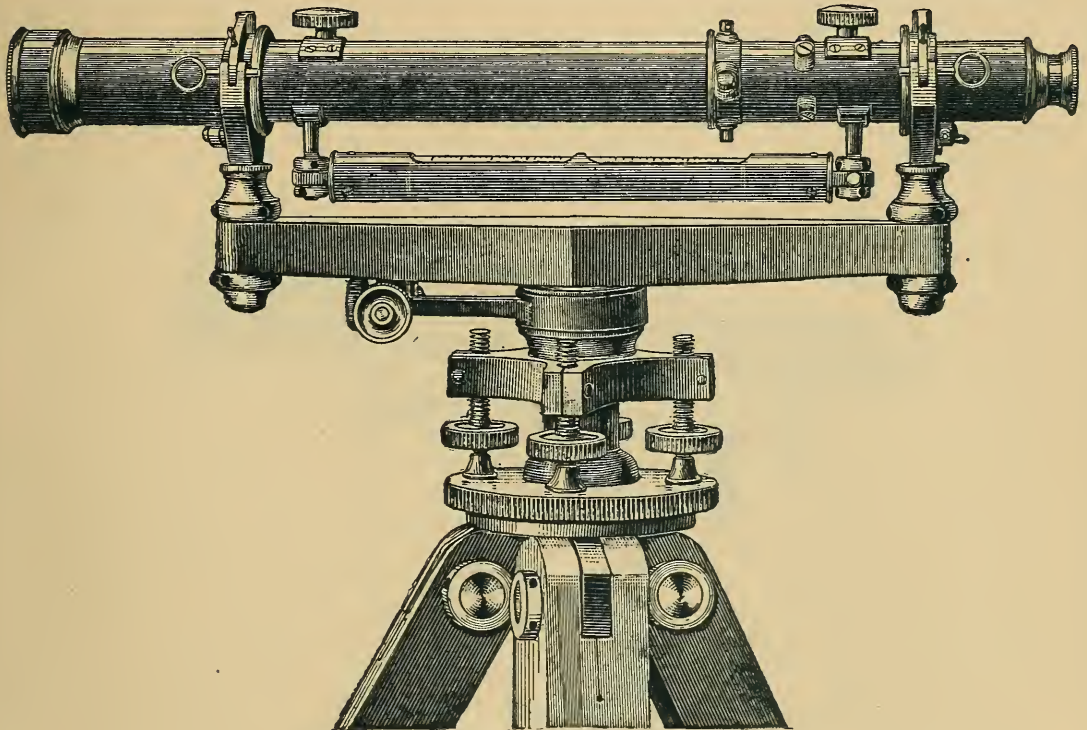
The above cuts represents the lower plate with the divisions and mode of numbering.  
If desired, the limb can be numbered any other way.

instance examine the instrument carefully and give an estimate of the necessary repairs before going ahead, or, if estimate is not satisfactory, return the instrument without charge for examining.

Instruments thus sent to us should be carefully packed and have the name of the sender on the packing box.

Tripods, unless in need of repairing, need not be sent with instrument.

Engineers' Y Level.



No. 5050.

Engineers' Y Level.

5050. Engineers Y Level with powerful achromatic terrestrial telescope 18 in. long, aperture of object glass  $1\frac{3}{8}$  in. diameter with dust cap and sunshade; improved rack and pinion movement, both to eye-piece and objective for focusing, very fine sensitive bubble (7-in. vial), graduated on the glass, adjustable vertically and horizontally; telescope rings and centers are very stout, long and of hard bell metal.

The telescope will revolve in the Y's without opening the clips, yet the cross hairs can be placed in an instant in a vertical and horizontal position by an improved stop.

The bar is cast hollow and provided with ribs to combine utmost strength and light weight. Clamp and tangent screw is attached to the bar and revolves with it (improved tangent screw with counterspring).

Instrument complete with Adjusting Pins, etc., in fine polished mahogany box, with solid or split leg tripod... each \$125.00

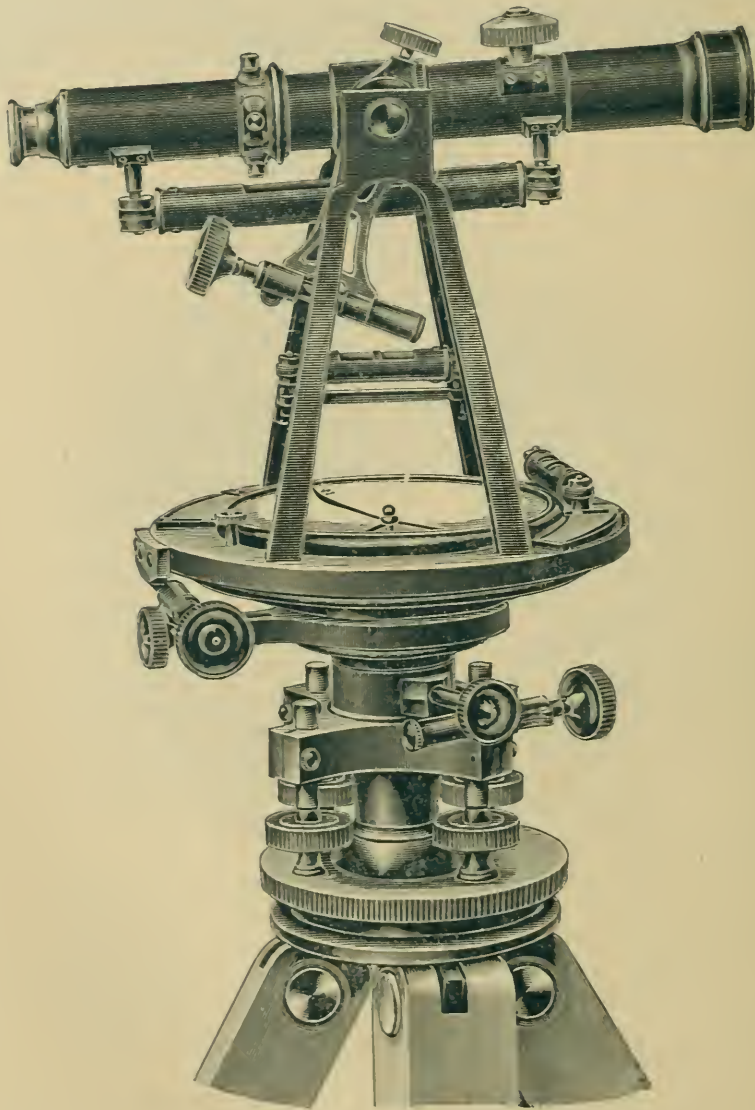
5051.	Engineers' Y Level, same as above, but 15-in. telescope..	"	100.00
5052.	" " " " 20 " " ... "	"	135.00
5053.	" " " " 22 " " ... "	"	140.00

When ordering, mention whether solid or split leg tripod is desired.  
For illustration to tripods, see pages 276 and 277.  
For Architects' Levels, see page 268.

H. S. CROCKER COMPANY

SAN FRANCISCO  
AND  
SACRAMENTO

Engineers' Transits, with Bubble to Telescope.



No. 5054.



## Engineers' Transits, with Bubble to Telescope.

5054. Engineer's Transit, Bent Standards, with powerful achromatic terrestrial telescope 11 in. long, aperture of object glass  $1\frac{3}{16}$  in. diameter with cross hairs, dust cap and sunshade; improved rack and pinion movement to eyepiece and objective, fine bubble ( $4\frac{1}{2}$ -in. vial) to telescope, graduated on the glass Telescope reversible from both ends. Clamp and tangent screws of improved pattern with counterspring.

Compass divided to half degrees, with improved needle  $4\frac{1}{2}$  in. Horizontal limb 6 in. graduated to half degrees, 2 opposite verniers (at  $30^\circ$  to telescope) reading to single minutes, and numbered as shown in cut on page 250, 2 fine graduated bubbles to horizontal limb. Shifting center.

Instrument complete with Plumb Bob, Adjusting Pin, etc., in fine polished mahogany box, with solid or split leg tripod ..... each \$200.00

5055. Engineers' Transit, same as No. 5054, but 5 in. needle horizontal limb  $6\frac{1}{2}$  in. .... " 205.00

Extras for above instruments, see page 260.

Construction of instruments, see pages 248-250.

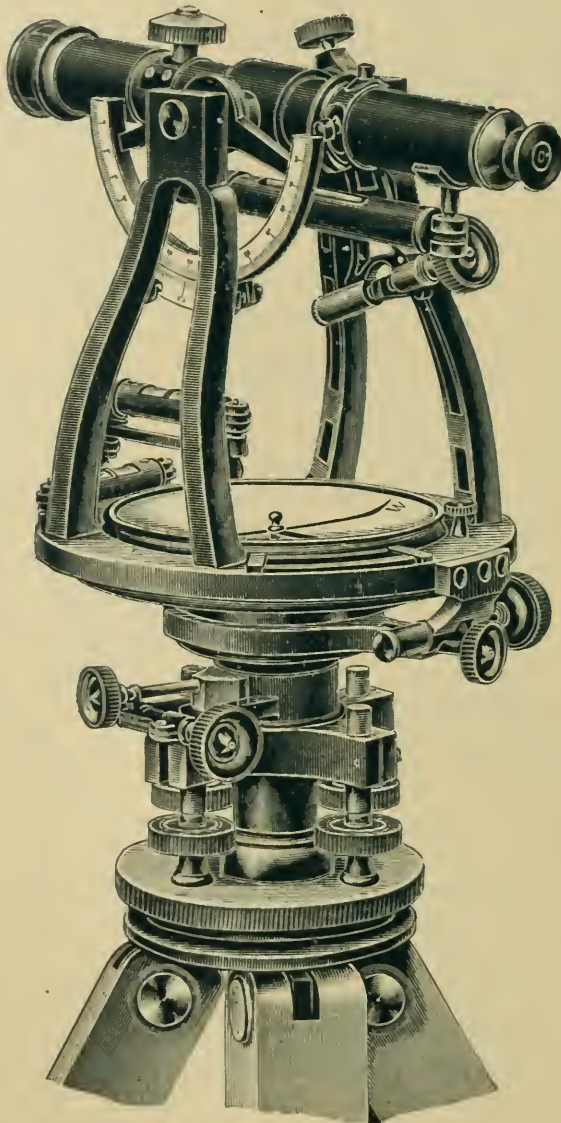
Transits with 4-in. needles, see page 259.

When ordering, state whether solid leg or split leg tripod is desired.

H. S. CROCKER COMPANY

SAN FRANCISCO  
AND  
SACRAMENTO

Engineers' Transits, with Bubble to Telescope,  
and Vertical Arc.



No. 5056.

## Engineers' Transits, with Bubble to Telescope, and Vertical Arc.

5056. Engineers' Transit, Bent Standards, with powerful achromatic terrestrial telescope 11 in. long, aperture of object glass  $1\frac{3}{16}$  in. diameter with cross hairs, dust cap and sunshade; improved rack and pinion movement to eyepiece and objective, fine bubble ( $4\frac{1}{2}$ -in. vial) to telescope, graduated on the glass. Telescope reversible from both ends. Clamp and tangent screws of improved pattern with counterspring

Compass divided to half degrees, with improved needle,  $4\frac{1}{2}$  in. Horizontal limb 6 in. graduated to half degrees, 2 opposite verniers (at  $30^\circ$  to telescope) reading to single minutes, and numbered as shown in cut on page 250; 2 fine graduated bubbles to horizontal limb.

Vertical arc 5 in. graduated on **solid silver** to half degrees, vernier reading to single minutes. Shifting center.

Instrument complete with Plumb Bob, Adjusting Pin, etc., in fine polished mahogany box, with solid or split leg tripod ..... each \$220.00

5057. Engineers' Transit, same as No. 5056, but 5-in. needle and horizontal limb  $6\frac{1}{2}$  in. .... " 225.00

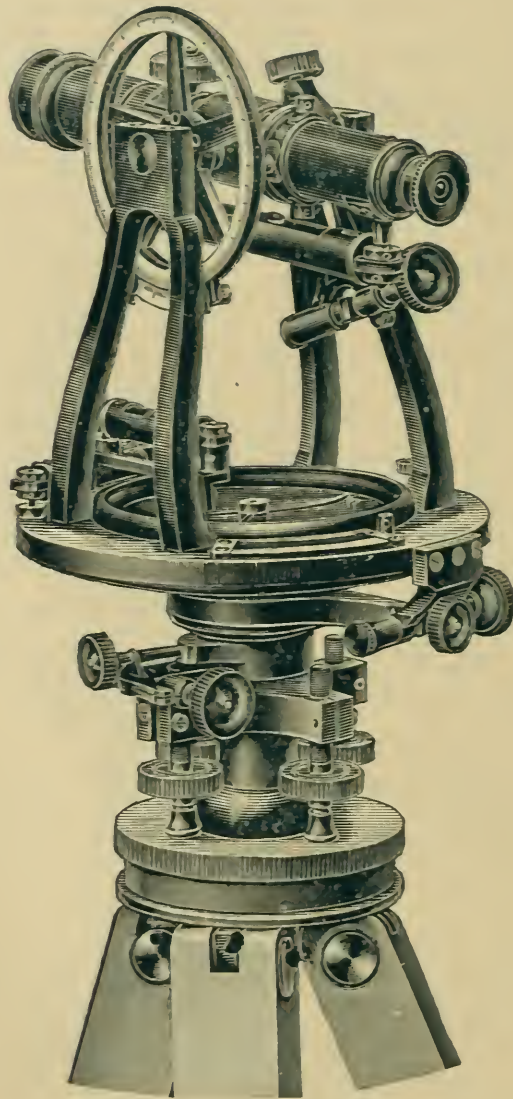
Extras for above instruments, see page 260.

Construction of instruments, see pages 248-250.

Transits with 4-in. needle, see page 259.

When ordering, state whether solid leg or split leg tripod is desired.

Engineers' Transits, with Bubble to Telescope,  
and Vertical Circle.



No. 5058.

## Engineers' Transits, with Bubble to Telescope, and Vertical Circle.

5058. Engineers' Transit, Bent Standards with powerful achromatic terrestrial telescope 11 in. long, aperture of object glass  $1\frac{3}{16}$  in. diameter, with stadia wires, dust cap and sunshade; improved rack and pinion movement to eyepiece and objective, fine bubble ( $4\frac{1}{2}$ -in. vial) to telescope, graduated on the glass. Telescope reversible from both ends. Clamp and tangent screws of improved pattern with countersprings.

Compass divided to half degrees, with variation plate and improved needle  $4\frac{1}{2}$  in. Horizontal limb 6 in. graduated to half degrees, 2 opposite verniers, (at  $30^\circ$  to telescope) reading to single minutes, and numbered as shown in cut on page 250; 2 fine graduated bubbles to horizontal limb.

Vertical circle 5 in. graduated on solid silver to half degrees, vernier reading to single minutes. Shifting center.

Instrument complete with Plumb Bob, Adjusting Pin, etc., in fine polished mahogany box, with solid or split leg tripod .....each \$235.00

5059. Engineers' Transit, same as No. 5058, but 5-in. needle and horizontal limb  $6\frac{1}{2}$  in. .... " 240.00

When ordering, state if cross hairs instead of stadia wires are desired.

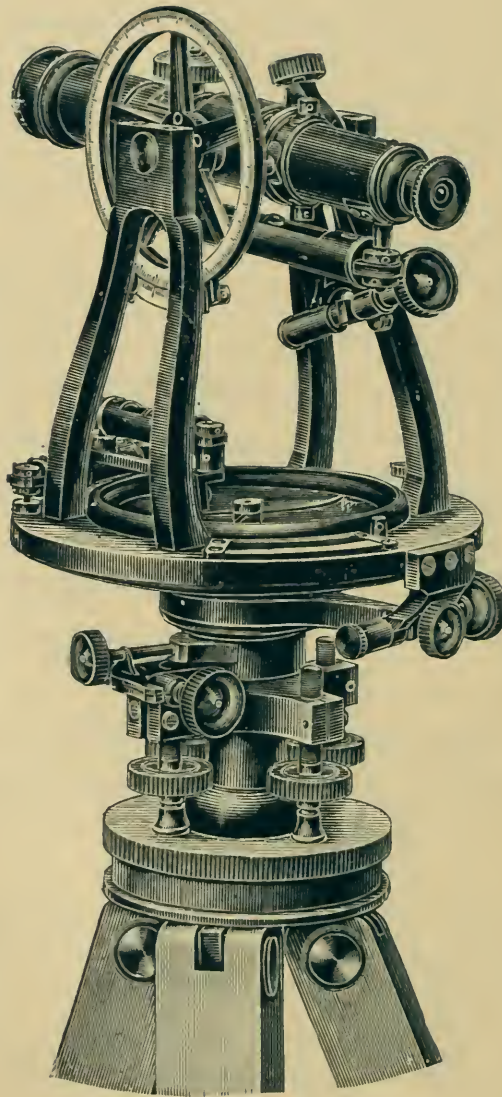
Extras for above instruments, see page 260.

Construction of instruments, see pages 248-250.

Transits with 4-in. needle, see page 259.

When ordering, state whether solid leg or split leg tripod is desired.

Mountain and Mining Transits.



No. 5062.

## Mountain and Mining Transits.

5062. Mountain and Mining Transit, Bent Standards, with powerful achromatic terrestrial telescope  $8\frac{1}{2}$  in. long, aperture of object glass 1 in. diameter with dust cap, stadia wires and sunshade; improved rack and pinion movement to eyepiece and objective, fine bubble (4-in. vial) to telescope, graduated on the glass. Telescope reversible from both ends. Clamp and tangent screws of improved pattern with counterspring.

Compass divided to half degrees, with variation plate, improved 4 in. needle, horizontal limb  $5\frac{1}{2}$  in. graduated to half degrees, 2 opposite verniers (at  $30^\circ$  to telescope) reading to single minutes and numbered as shown in cut on page 250; 2 fine graduated bubbles to horizontal limb.

Vertical circle 4 in. graduated on **solid silver** to half degrees, vernier reading to single minutes. Shifting center.

Instrument complete with Plumb Bob, Adjusting Pin, etc.,  
in fine polished mahogany box, with split leg tripod.. each \$220.00

5063. Mountain and Mining Transit same as No. 5062, but with  
**vertical arc**, instead of full vertical circle ..... " 205.00

5064. Mountain and Mining Transit same as No. 5062, but  
**without vertical circle** ..... " 190.00

We furnish **split leg tripods** with above instruments, unless the solid leg tripod is specially ordered; if **cross hairs** instead of stadia wires are desired, please state in your order.

## Prices of Parts of Instruments Liable to Loss or Injury.

Needle, having the largest breadth in a vertical direction, which is far superior to the flat style.....	each	\$ 4 00
Center Point.....	"	75
Center Cap, with jewel.....	"	1 50
Center Cap, with steel center.....	"	1 75
Ground Level Vials for Plate or Standards.....	"	75
Sensitive Ground Level Vials for Transit Telescope.....	each	\$2 50 to 3 00
Sensitive Ground Level Vials for Level.....	"	3 50 to 5 00
Cap for Eyepiece or Object Glass.....	each	1 00
Shade for Object Glass.....	"	75
Clamp Screws for Horizontal Limb, Telescope Clamp or Lower Tangent Movement.....	"	75
Leveling Screws.....	per set	\$5.00
Tangent Screws for any of our Transits or Levels.....	"	1 25
Plain Tripod Legs.....	per set	\$5.00
Split Tripod Legs, as furnished with our new instruments..	per set of 3 legs	8 00
Bolts for Tripod Head, complete.....	each	75
New Tripod Head, without bolts.....	"	5 00
Wooden Cap for Tripod.....	"	75
Object Glass, best quality, for Transits (mounted).....	"	7 00
Object Glass, best quality, for Y Levels.....	"	9 00
Eye Lense and Setting for any Eyepiece.....	"	1 50
New Cross Hairs and Adjusting.....	"	2 00
New Cross Hairs with Diaphragm.....	"	2 75
Fixed Stadia Hairs to any instrument.....	"	6 00

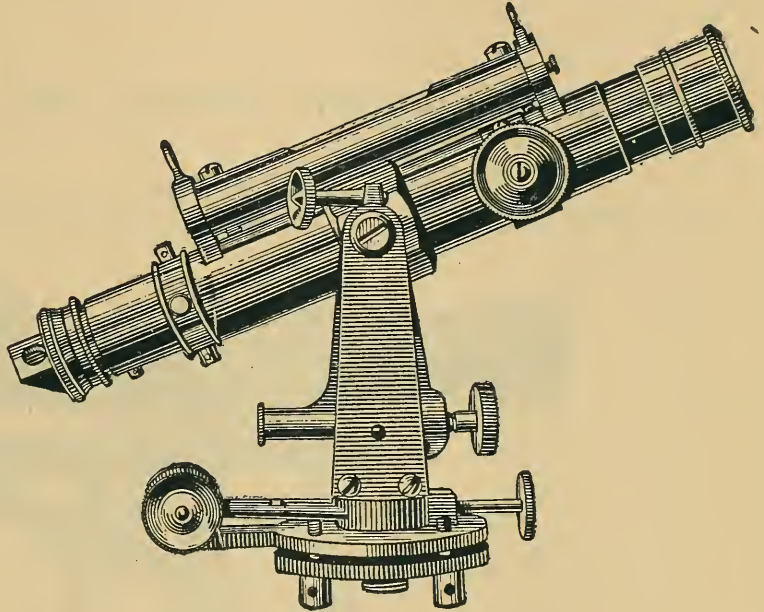
The following prices only apply to attachments when ordered with new instruments. If attachments are ordered for old instruments, charges for fitting will be added:

Extra Telescope for Vertical Sighting, with Prism to Eyepiece either on top or on the side of regular Telescope, if ordered with new instrument.....	each	\$40 00
Extra Telescope for Vertical Sighting, with Prism to Eyepiece at right angle with regular Telescope, if ordered with new instrument .....	"	50 00
Stadia Wires, if ordered with new instrument.....	"	3 00
Gradiometer Screw to Telescope instead of Common Tangent Screw .....	"	5 00
Variation Plate to Compass Ring, if ordered with new instrument .....	"	3 50
Theodolite Axis to Telescope, if ordered with new instrument....	"	10 00
Astronomical instead of Terrestrial Eyepiece.....	"	5 00
Horizontal Limb and Verniers graduated on solid silver.....	"	10 00
Graduations to 10 or 15 seconds.....	"	10 00
Graduations to 20 or 30 seconds.....	"	5 00
Ground Glass Shades attached to Verniers.....	"	5 00
Attached Reading Glasses to Limb or Vertical Circle.....	"	5 00
Gossamer Bag of rubber cloth.....	"	1 00
Gossamer Bag of silk.....	"	2 00
Extension Tripod instead of regular Tripod.....	"	5 00



## Improved Saegmuller Solar Attachment.

No. 5065 represents the Improved Solar Attachment as now made. It consists essentially of a small telescope and level, the telescope being mounted in standards, in which it can be elevated or depressed. The standard revolves around an axis, called the polar axis, which is fastened to the telescope axis of the transit instrument. The telescope called the "Solar Telescope" can thus be moved in altitude and azimuth. Two pointers attached to the telescope to approximately set the instrument are so adjusted that when the shadow of the one is thrown on the other the sun will appear in the field of view.



No. 5065.

5065. Improved Solar Attachment.....each \$50 00

### ADJUSTMENT OF THE APPARATUS.

1. The transit must be in perfect adjustment, especially the levels on the telescope and the plates; the cross axis of the telescope should be exactly horizontal, and the index error of the vertical circle carefully determined.

2. The polar axis must be at right angles to the line of collimation and horizontal axis of main telescope.

To effect this, level the instrument carefully and bring the bubble of each telescope lever to the middle of its scale. Revolve the solar around its polar axis, and if the bubble remains central the adjustment is complete. If not, correct half the movement by the adjusting screws at the base of the polar axis, and the other half by moving the solar telescope on its horizontal axis.

3. The line of collimation of the solar telescope and the axis of its level must be parallel.

To effect this, bring both telescopes in the same vertical plane and both bubbles to the middle of their scales. Observe a mark through the transit telescope, and note whether the solar telescope points to a mark above this, equal to the distance between the horizontal axis of the two telescopes. If it does not bisect this mark, move the cross wires by means of the screws until it does. Generally the small level has no adjustments and the parallelism is effected only by moving the cross hairs.

The adjustments of the transit and the solar should be frequently examined, and kept as nearly perfect as possible.

### DIRECTIONS FOR USING THE ATTACHMENT.

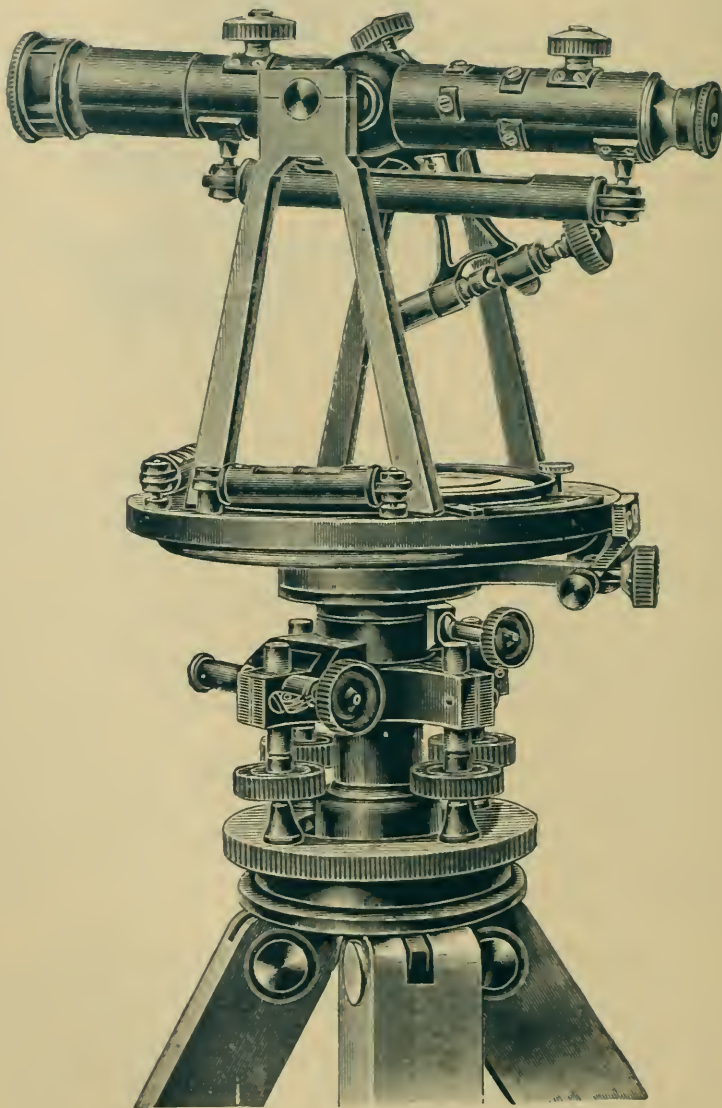
**FIRST.** Take the declination of the sun as given in the Nautical Almanac for the given day, and correct it for refraction and hourly change. Incline the transit telescope until this amount is indicated by its vertical arc. If the declination of the sun is north, depress it; if south, elevate it. Without disturbing the position of the transit telescope, bring the solar telescope into the vertical plane of the large telescope and to a horizontal position by means of its level. The two telescopes will then form an angle which equals the amount of the declination, and the inclination of the solar telescope to its polar axis will be equal to the polar distance of the sun.

**SECOND.** Without disturbing the relative positions of the two telescopes, incline them and set the vernier to the colatitude of the place.

By moving the transit and the "Solar Attachment" around their respective vertical axes, the image of the sun will be brought into the field of the solar telescope, and after accurately bisecting it the transit telescope must be in the meridian, and the compass-needle indicates its deviation at that place.

The vertical axis of the "Solar Attachment" will then point to the pole, the apparatus being, in fact, a small equatorial.

4½-inch Surveyors' Transit, with Bubble to  
Telescope.



No. 5066.

## 4 1/2 -inch Surveyors' Transit, with Bubble to Telescope.

5066. Surveyors' Transit, straight Standards, with powerful achromatic terrestrial telescope 11 in. long, aperture of object glass  $1\frac{3}{16}$  in. diameter, with cross hairs, dust cap and sunshade; improved rack and pinion movement to eyepiece and objective, fine bubble ( $4\frac{1}{2}$ -in. vial) to telescope, graduated on the glass. Clamp and tangent screws of improved pattern with counterspring.

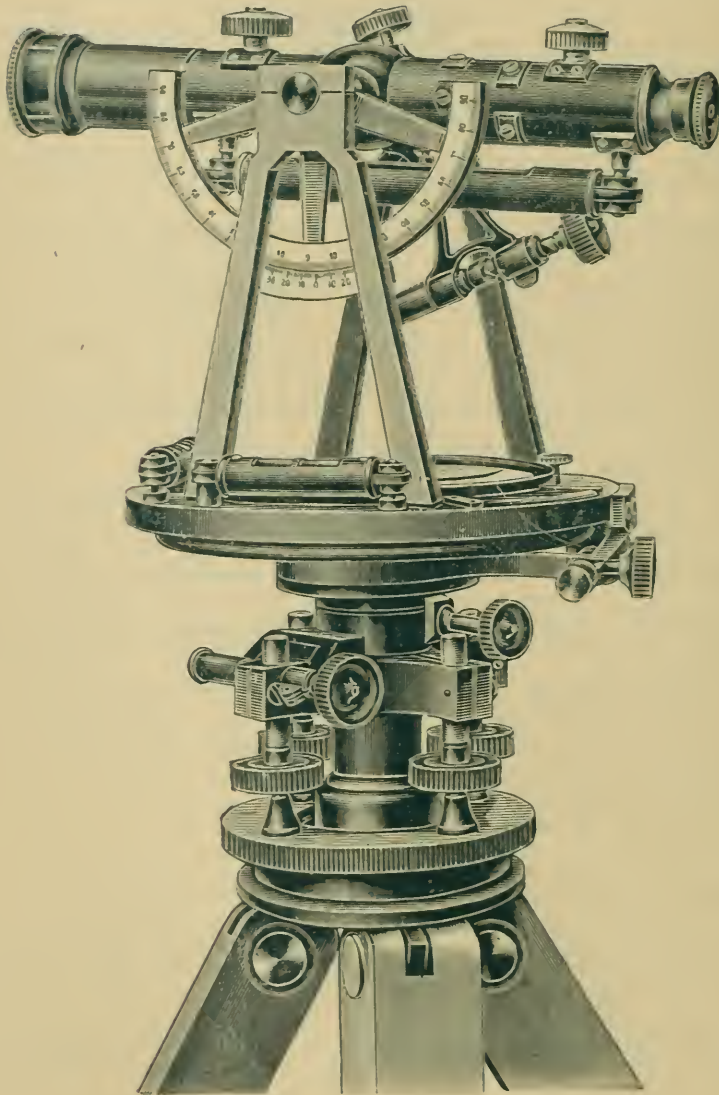
Compass divided to half degrees with improved needle,  $4\frac{1}{2}$  in. Horizontal limb 6 in. graduated to half degrees, 2 opposite verniers (at  $30^\circ$  to telescope) reading to single minutes, and numbered as shown in cut on page 250; 2 fine graduated bubbles to horizontal limb. Shifting center.

Instrument complete, with Plumb Bob, Adjusting Pin, etc.,

in fine polished mahogany box, with solid leg tripod...each \$160.00

Construction of instruments, pages 248-250. Extras, page 260.

4½-inch Surveyors' Transit, with Bubble to  
Telescope, and Vertical Arc.



No. 5068.

## 4½-inch Surveyors' Transit, with Bubble to Telescope, and Vertical Arc.

5068. Surveyors' Transit, straight Standards, with powerful achromatic terrestrial telescope 11 in. long, aperture of object glass  $1\frac{3}{16}$  in. diameter, with cross hairs, dust cap and sunshade; improved rack and pinion movement to eyepiece and objective, fine bubble ( $4\frac{1}{2}$ -in. vial) to telescope, graduated on the glass. Clamp and tangent screws of improved pattern with counterspring.

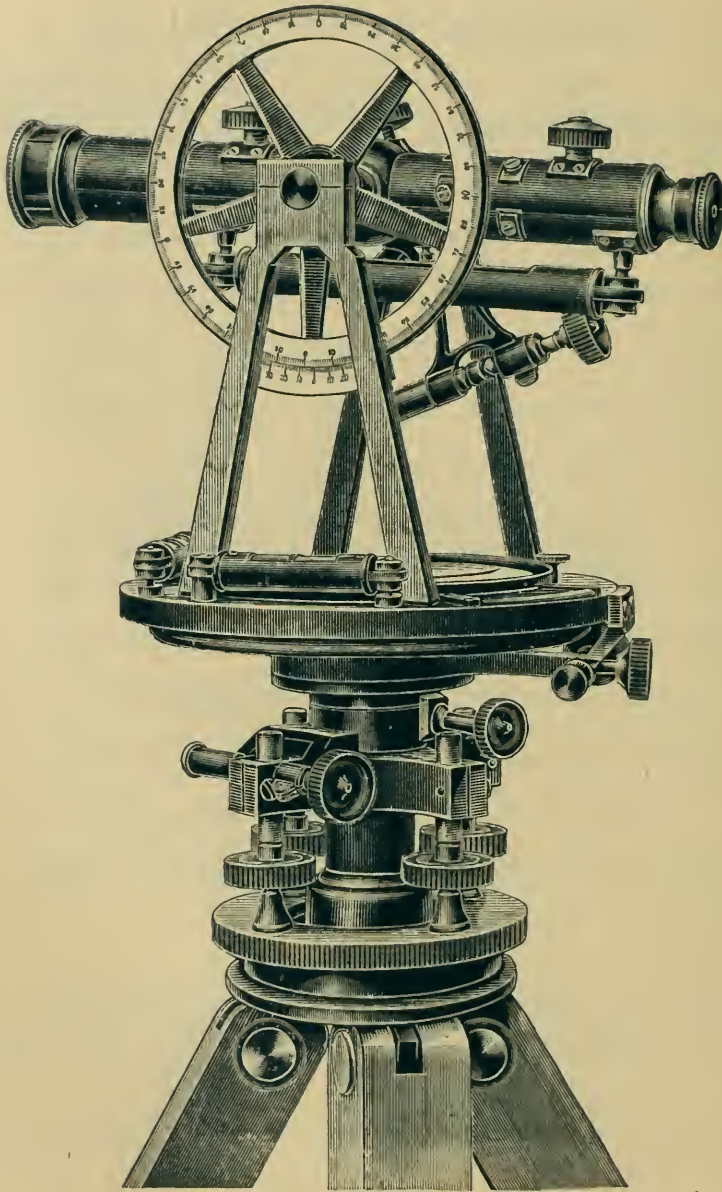
Compass divided to half degrees, with improved needle  $4\frac{1}{2}$  in. Horizontal limb 6 in. graduated to half degrees, 2 opposite verniers (at  $30^\circ$  to telescope) reading to single minutes, and numbered as shown in cut on page 250; 2 fine graduated bubbles to horizontal limb.

Vertical arc 5 in. graduated on solid silver to half degrees, vernier reading to single minutes. Shifting center.

Instrument complete with Plumb Bob, Adjusting Pin, etc., in fine polished mahogany box, with solid leg tripod. . each \$170.00

Construction of instruments, see pages 248-250. Extras, page 260.

4 $\frac{1}{2}$ -inch Surveyors' Transit, with Bubble to  
Telescope, and Vertical Circle.



No. 5070.

## 4 1/2 inch Surveyors' Transit, with Bubble to Telescope, and Vertical Circle.

5070. Surveyors' Transit, straight Standards, with powerful achromatic terrestrial telescope 11 in. long, aperture of object glass  $1\frac{3}{16}$  in. diameter, with dust cap, stadia wires and sunshade; improved rack and pinion movement to eyepiece and objective, fine bubble ( $4\frac{1}{2}$ -in. vial) to telescope, graduated on the glass. Clamp and tangent screws of improved pattern with counterspring.

Compass divided to half degrees, with variation plate and improved needle  $4\frac{1}{2}$  in. Horizontal limb 6 in. graduated to half degrees, 2 opposite verniers (at  $30^\circ$  to telescope) reading to single minutes and numbered as shown in cut on page 250; 2 fine graduated bubbles to horizontal limb.

Vertical circle 5 in. graduated on **solid silver** to half degrees, vernier reading to single minutes. Shifting center.

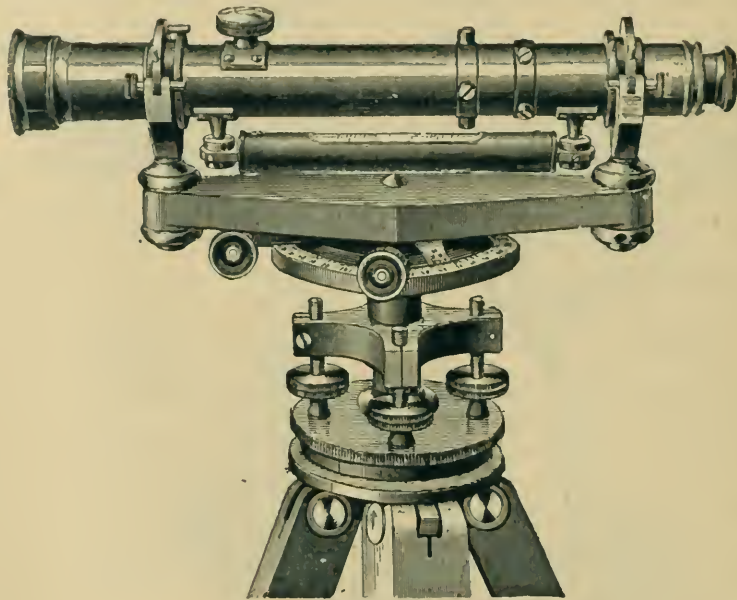
Instrument complete with Plumb Bob, Adjusting Pin, etc.,

in fine polished mahogany box, with solid leg tripod... each \$175.00

5071. Mountain and Mining Transit same as No. 5070, but telescope  $8\frac{1}{2}$  in. long, stadia wires, compass with variation plate and 4-in. needle, horizontal limb  $5\frac{1}{2}$  in. vertical circle 4 in. and split leg tripod. .... " 170.00

## Architects' Y Level.

The following Instruments are especially designed and recommended to Architects, Builders and Contractors in leveling walls, giving lines and levels for buildings, laying out angles, grading streets, sewers, drains, etc.



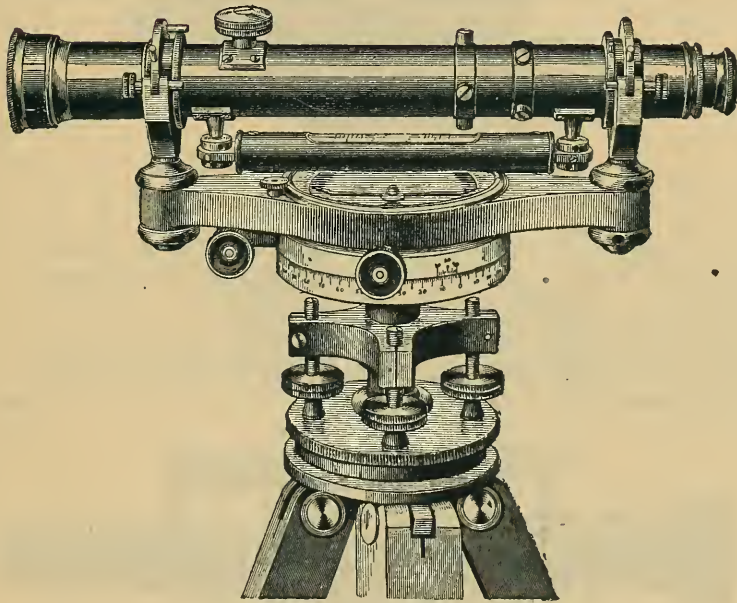
No. 5072.

5072. Architects' Y Level.—Telescope 12 in. long, with adjustable eyepiece for focusing cross hairs, rack and pinion movement for focusing objective, sunshade, ground bubble to telescope; horizontal circle 3 in. divided to degrees marked  $0^{\circ}$  to  $90^{\circ}$  each way, reading by a vernier (which is attached to the spindle) to 5 minutes. The horizontal circle is reversible for the purpose of setting the Instrument over a given point. The Instrument has a clamp to spindle and tangent adjustment.

Instrument complete in neat polished box, with lock, key and strap, including Plumb Bob, Adjusting Pins, Hardwood Tripod and Metal Trivet. (Trivet shown in cut No. 5076).....each \$45.00



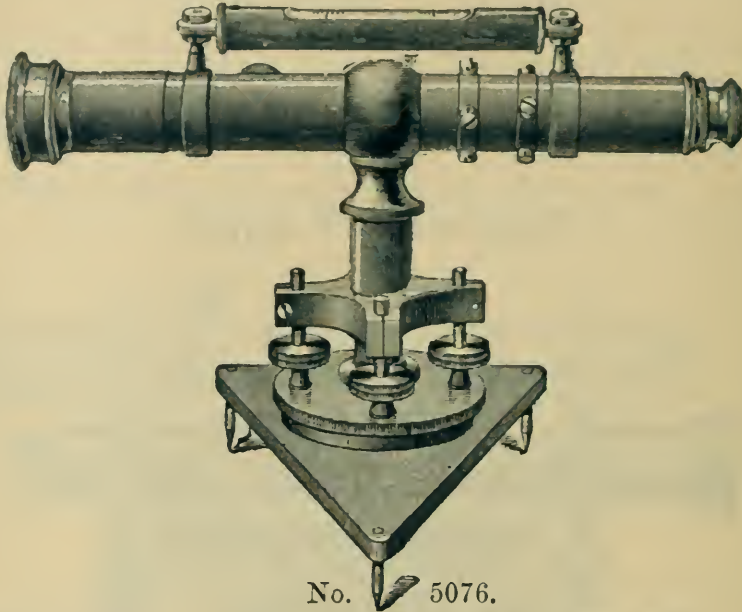
Architects' Y Level.



No. 5073.

5073. Architects' Level, same as No. 5072, but with Compass  
divided on raised ring to degrees and improved needle  
2 $\frac{3}{4}$  in..... each \$60.00

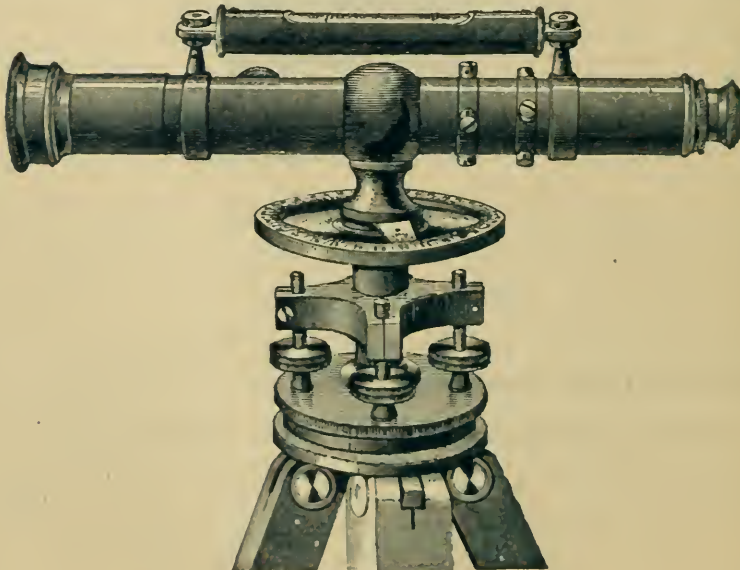
Dumpy Level.



No. 5076.

5076. Dumpy Level.—Telescope 12 in. long, with cross hairs, rack and pinion-movement, adjustable eyepiece, ground bubble with protecting tube.

Instrument complete in neat polished box, with lock and key and strap, including Plumb Bob, Adjusting Pins, Hardwood Tripod and Metal Trivet . . . . . each \$30.00



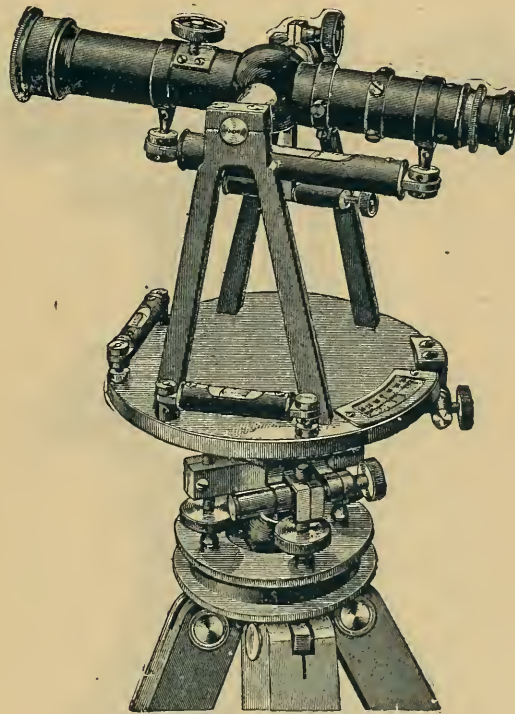
No. 5077.

5077. The same Instrument as No. 5076, but with reversible horizontal circle 3 in. divided to degrees, vernier reading to 5 minutes (for laying out angles) . . . . . each \$35.00

The Dumpy Level is of very simple construction, but like the Architects' and Builders' Level is a well-made, accurate leveling instrument, and will be found of great value to the builder, bricklayer, wheelwright, farmer, landscape gardener, etc.

## Architects' Transit, with Level Attachment.

The following instruments are designed for light and moderately accurate work. They are specially recommended to Architects and Builders in taking angles, leveling foundations, examining walls under way of construction, giving lines and levels for buildings; for rapid and preliminary surveying, and all such work where a light, portable instrument is desired.

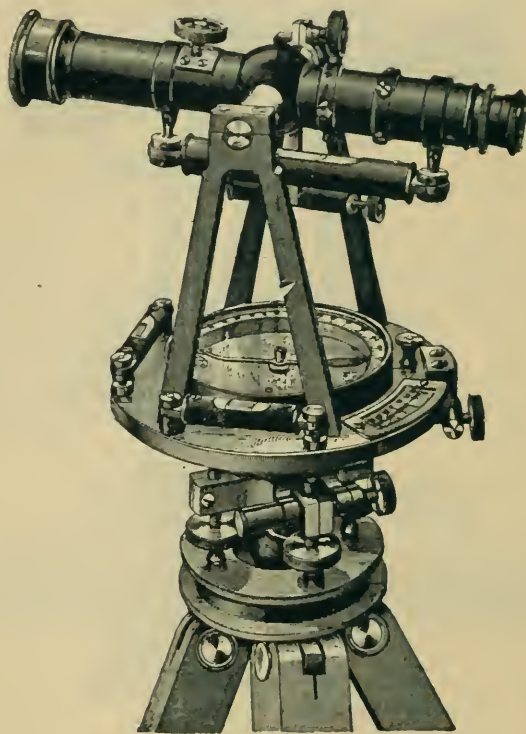


No. 5080.

5080. Architects' Transit, with Level Attachment.—Telescope,  $8\frac{1}{2}$  in. long, with cross hairs, rack and pinion movement, adjustable eyepiece 5 in. Horizontal limb divided in half degrees with vernier reading to minutes, 2 bubbles on limb plate, tangent adjustment to plate and telescope. Shifting center.

Complete in box with tripod . . . . . each \$80.00

Architects' Transit, with Level Attachment.

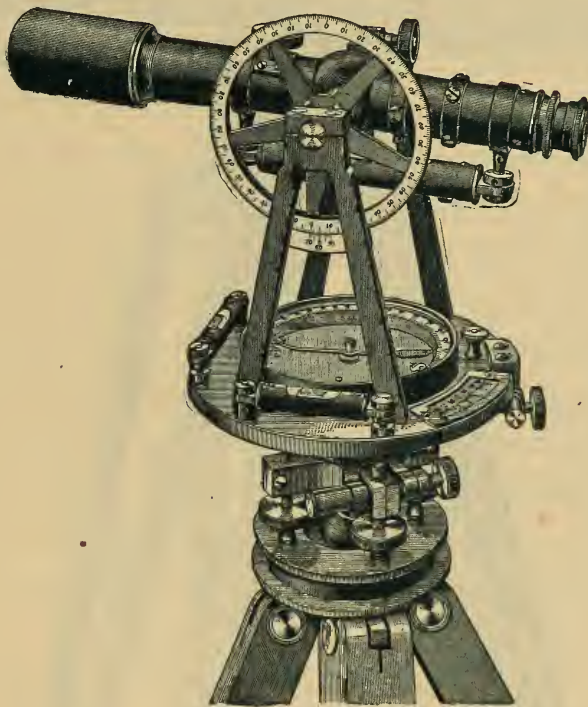


No. 5081.

5081. The same Instrument as No. 5080, but with compass, 3-in.

needle . . . . . each \$100.00

Architects' Transit, with Level Attachment.



No. 5081-C.

5081-C. The same instrument as No. 5081, but with vertical  
circle, reading by vernier to 5 minutes. . . . . each \$115.00

H. S. CROCKER COMPANY

SAN FRANCISCO  
AND  
SACRAMENTO

PLANE TABLE.



No. 5082.

**PLANE TABLE.**

The above cut represents one of our Plane-Tables with a portion of the board cut out to show the motion-work.

This instrument is made by us in two sizes. Size 1 has a larger base for the table to rest on than is usual in plane tables, and therefore is particularly adapted for the more accurate work in topographical surveying. For work of a more general character, where greater portability is required, we make this base of the ordinary size, like those used in the U. S. Coast Survey, but with all the improvements of the larger base. One tangent screw is attached to the lower part, and this, as well as the alidade, is built on the skeleton plan, so as to make them light and stiff. The alidade is provided with a powerful telescope, striding level, vertical arc, small round level and stadia wires.

Plane table, complete with achromatic telescope 11 inches long, with sunshade, object glass 1½-inch, with rack movement; spiral adjustment to eye-piece, magnifying about twenty-four times. The telescope revolves on axis mounted in standard 6½ inches high, with arc graduated to half degrees, vernier reading to one minute. Alidade 18 inches long, two inches wide, one edge beveled. Detachable table 18 x 24 inches, mounted on tripod by a large plate, resting on three leveling screws. Either compass with 3-inch or 4½-inch needle, plumb bob, plumbing bar and universal level.

5082, including table, detached compass, 2 cases, screw-drivers, clamps,  
etc., each.....\$165 00  
5082 A, without tangent movement, each..... 150 00

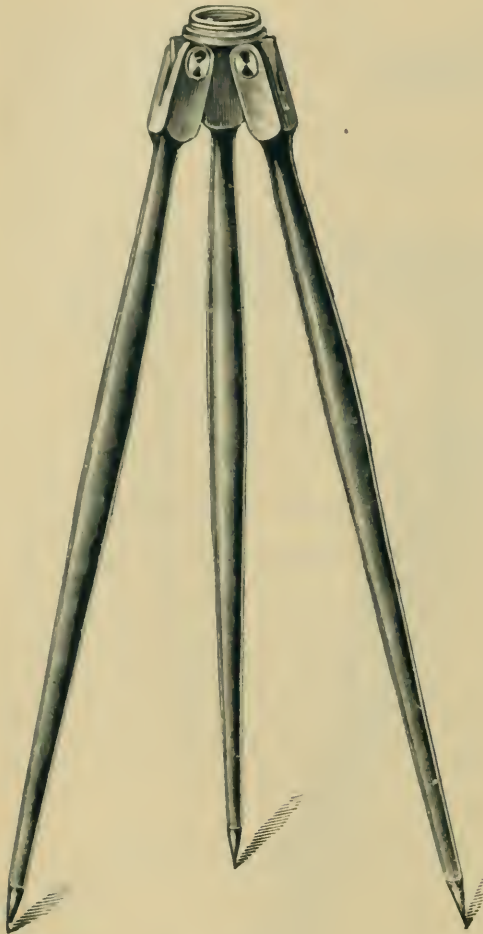
**ADJUSTMENTS OF THE PLANE TABLE.**

The adjustment of the alidade being the same as the adjustment of the telescope and vertical arc in the transit, we refer to the adjustment of the transit for these adjustments. There is only one other adjustment.

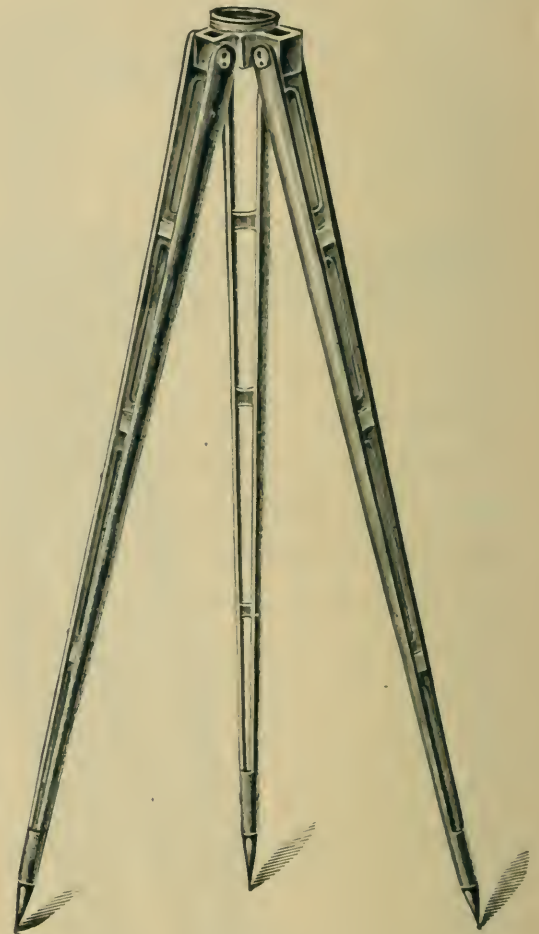
To make the axis of the plate-bubbles parallel to the plane table.—Level the table with the alidade in any position, noting the readings of the bubbles, mark exact position of the alidade on the table, take it up carefully and reversing it end for end, replace it by the same marks. If the bubbles now have the same reading as before, with reference to the table, they are parallel to the plane of the table; if not, adjust the bubbles for *one-half* the movement and try again.

# TRIPODS

FOR LEVELS AND TRANSITS.



No. 5083.



5085.

- |       |   |      |         |
|-------|---|------|---------|
| 5083. | Hardwood Tripod for levels and transits . . . . .   | each | \$10.00 |
| 5084. | Hardwood Tripod, like No. 5083, but lighter, for Architects' Levels, etc. . . . .   | "    | 6.50    |
| 5085. | Split Tripod of hardwood, for levels and transits, latest construction, very strong, extremely light (total weight about 6 lbs) . . . . . | "    | 12.50   |

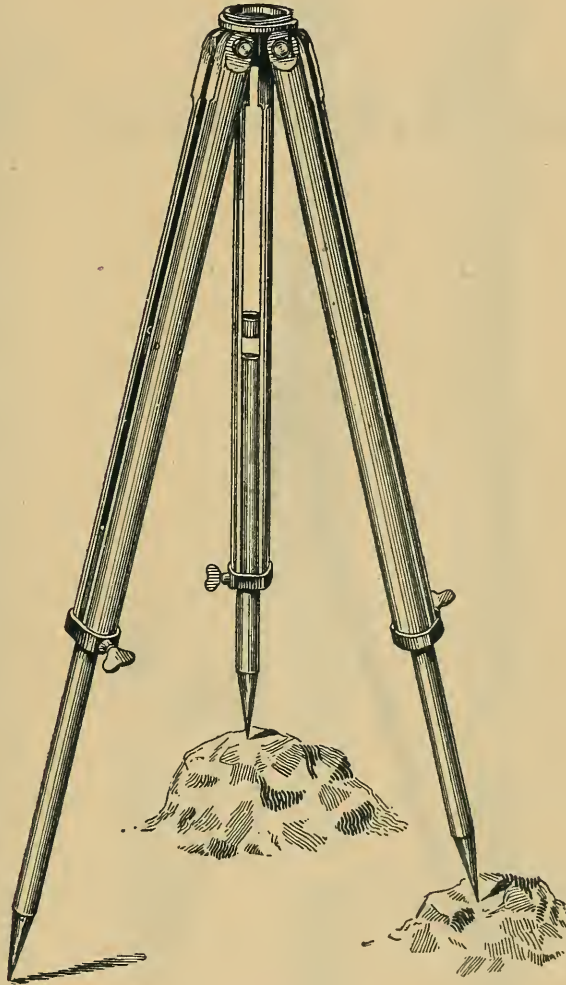
This is the style of Tripod which we furnish with our surveying instruments.

Same as No. 5083, furnished with instrument in place of No. 5085, no extra charge.

Any of the above tripods can be furnished also with spurs on the points, for pressing the points into the ground, at an extra charge of . . . . . per tripod 1.00



PATENT EXTENSION TRIPOD.

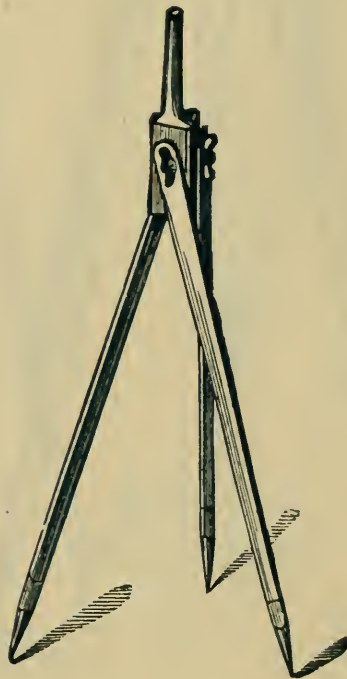


No. 5086.

This Patent Extension Tripod combines rigidity with lightness; its manipulation is easy and its construction such, that the sliding leg can neither wear loose nor bind, but will always move smoothly. The special clamps used render it as steady, even when the legs are fully extended, as any solid-leg tripod. The head is very firm, wing nuts being used instead of tenon joints. It is adjustable to any height between 30 and 57 inches and weighs about 10 pounds. Whilst being stronger than any other Extension Tripod, it is less bulky and more portable.

5086.	Patent Extension Tripod.....	each	\$15.00
	“ “ “ if with instrument in place of		
	No. 5083 extra.....		5.00

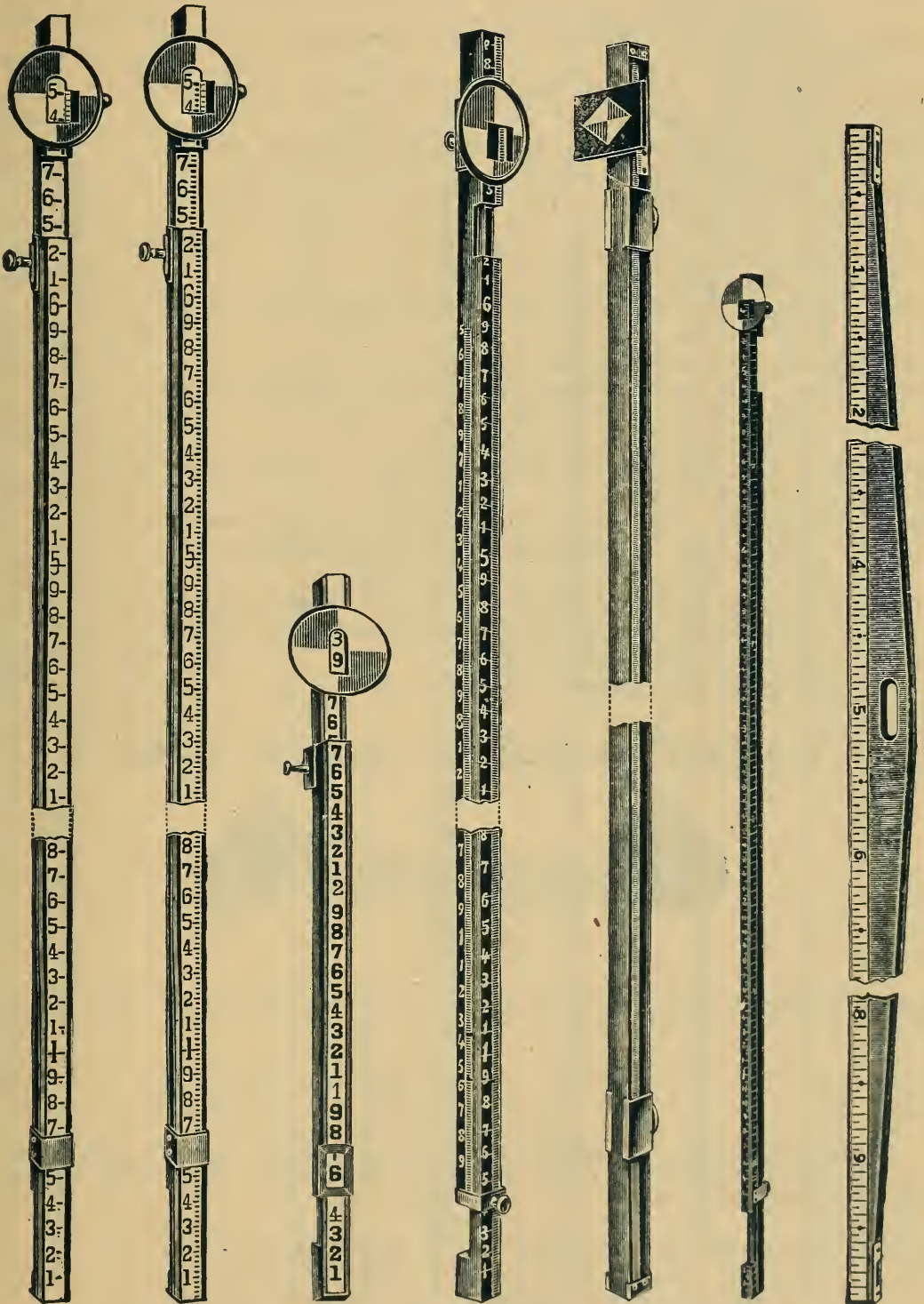
TRIPOD WITH JACOB-STAFF TOP.



No. 5088.

- |       |   |      |        |
|-------|---|------|--------|
| 5087. | Jacob-staff, 5 feet, Iron Shoe .....                    | each | \$1.00 |
| 5088. | Tripod, with Jacob-staff Top for Compasses, light ..... | “    | 3.00   |

# LEVELING RODS.



No. 5092.

5093.

5095.

5097.

5099.

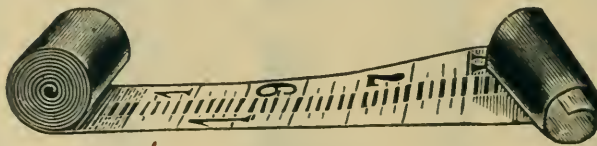
6000.

6007.

**LEVELING RODS.**

5089.	Philadelphia Rod, with Target, Vernier and Clamp, 7 feet, sliding out to 13 feet. . . . .	each	\$15.00
5090.	Philadelphia Rod, like No. 5089, but subdivided 100 parts to the foot . . . . .	"	15.00
5091.	Philadelphia Rod, like No. 5089, but metric, 2.2 meter, sliding out to 4 meter. . . . .	"	15.00
5092.	Light Philadelphia Rod, with Target, Vernier and Clamp, 6½ feet, sliding out to 12 feet. . . . .	"	13.00
5093.	Light Philadelphia Rod, like No. 5092, but subdivided 100 parts to the foot . . . . .	"	13.00
5094.	Light Philadelphia Rod, like No. 5092, but metric, 2 meter, sliding out to 3.7 meter . . . . .	"	14.00
5095.	Mining Rod, with Target, Vernier and Clamp, 3 feet, sliding out to 5 feet. . . . .	"	12.00
5096.	Mining Rod, 5 feet, sliding out to 9 feet . . . . .	"	12.75
5097.	New York Rod, hardwood of light color, divided $\frac{1}{10}$ and $\frac{1}{100}$ parts to the foot, with Target, Vernier and Clamp, 6½ feet, sliding out to 12 feet. . . . .	"	14.00
5098.	New York Rod, like No. 5097, but metric, 2 meter, sliding out to 3.7 meter . . . . .	"	14.00
5099.	Boston Rod, mahogany, machine divided on satinwood, with Target, Vernier at each end, 6½ feet, sliding out to 11 feet, 4 inches. . . . .	"	14.00
6000.	Architects' Rod, light colored hardwood, brass mounted, with Target, Vernier and Clamp, divided to inches and $\frac{1}{8}$ , 5½ feet, sliding out to 10 feet. . . . .	"	6.00
6001.	Architects' Rod, divided in $\frac{1}{10}$ and $\frac{1}{100}$ feet. . . . .	"	6.00

**FLEXIBLE OR POCKET LEVELING RODS.**



No. 6002.

6002.	Flexible or Pocket Leveling Rod, 8 ft., div. in $\frac{1}{10}$ and $\frac{1}{100}$ ft.	each	\$3.00
6003.	" " " " 10 " " " " " " "	"	3.25
6004.	" " " " 12 " " " " " " "	"	4.00
6005.	" " " " 12 " div. inches and $\frac{1}{8}$ inch	"	4.00
6006.	" " " " metric, 3.5 meter, div. to centimeter	"	4.00

These Rods are strips of prepared canvas, 3 in. wide, divided like self-reading rods. For use they are fastened to a straight board with thumb tacks. When rolled up they are easily carried in the pocket.

6007.	Cross Section Rod, pinewood, 10 feet long, divided on both sides to 10ths of a foot, with level bubbles on each end; opening in center for the hand and furnished with pole, 1 inch square 8 feet long, divided to 10ths of a foot on each side . . . . .	each	\$12.50
-------	---	------	---------

LEVELING POLES.



No. 6008.

- 6008-A. Iron Tubular Transit Poles,  $\frac{7}{8}$ -in. diameter, painted red and white alternately every foot.
- |           |        |      |          |
|-----------|--------|------|----------|
| Each..... | 6      | 8    | 10 feet. |
|           | \$2.75 | 3.00 | 3.50     |
- 6008-B. Leveling Poles of best seasoned wood, round, tapered, painted red and white alternately every foot.
- |           |        |      |          |
|-----------|--------|------|----------|
| Each..... | 6      | 8    | 10 feet. |
|           | \$2.00 | 2.25 | 2.50     |



No. 6009.

6009. Leveling Poles of best seasoned wood, octagonal, tapered, painted red and white alternately every foot.
- |           |        |      |          |
|-----------|--------|------|----------|
| Each..... | 6      | 8    | 10 feet. |
|           | \$2.00 | 2.25 | 2.50     |

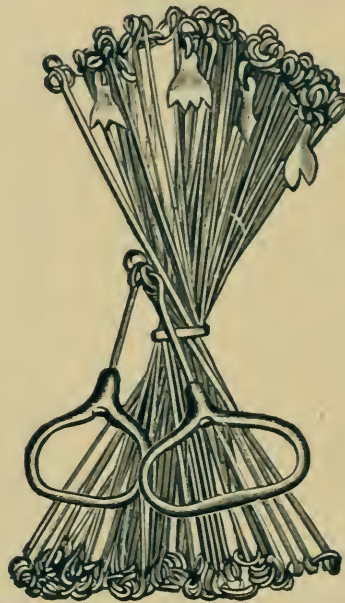


No. 6010.

6010. Steel Transit Poles,  $\frac{1}{2}$ -in. diameter, turned and hardened points, painted red and white alternately every foot.
- |           |        |         |
|-----------|--------|---------|
| Each..... | 6      | 8 feet. |
|           | \$2.75 | 3.00    |

# MEASURING CHAINS.

## STEEL.



No. 6012.

6011.	Steel, W. G. 12, Brass Handles, oval rings, 50 feet . . . . .	each	\$ 4.50
6012.	“ “ 12, “ “ “ “ 100 “ . . . . .	“	8.00
6013.	“ “ 12, “ “ “ “ 33 “ . . . . .	“	3.50
6014.	“ “ 12, “ “ “ “ 66 “ . . . . .	“	6.50
6015.	“ “ 12, “ “ brazed links and rings, 50 feet “		6.00
6016.	“ “ 12, “ “ “ “ “ 100 “ “		11.00
6017.	“ “ 12, “ “ “ “ “ 33 “ “		5.50
6018.	“ “ 12, “ “ “ “ “ 66 “ “		10.00

Chain 6016 has a spring-hook (snap) at 50 feet, so that it can be separated there and the handle attached for using as a 50-foot chain.

## METER.

6019.	Steel, W. G. 12, Brass Handles, oval rings, 10 meter . . . . .	each	\$3.50
6020.	“ “ 12, “ “ “ “ 15 “ . . . . .	“	5.00
6021.	“ “ 12, “ “ “ “ 20 “ . . . . .	“	6.20

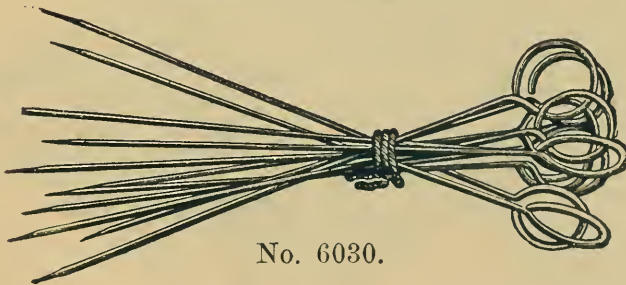
IRON.



No. 6023.

6022.	Iron,	W. G. 8,	Brass Handles,	2 round rings,	50 feet	.....	each	\$2.50
6023.	"	" 8,	"	" 2	" 100	" .....	"	3.50
6024.	"	" 8,	"	" 2	" 33	" .....	"	2.00
6025.	"	" 8,	"	" 2	" 66	" .....	"	3.20
6026.	"	" 8,	"	" 3	sawed oval rings,	50 feet...	"	3.50
6027.	"	" 8,	"	" 3	" 100	" ...	"	5.50
6028.	"	" 8,	"	" 3	" 33	" ...	"	2.70
6029.	"	" 8,	"	" 3	" 66	" ...	"	4.25

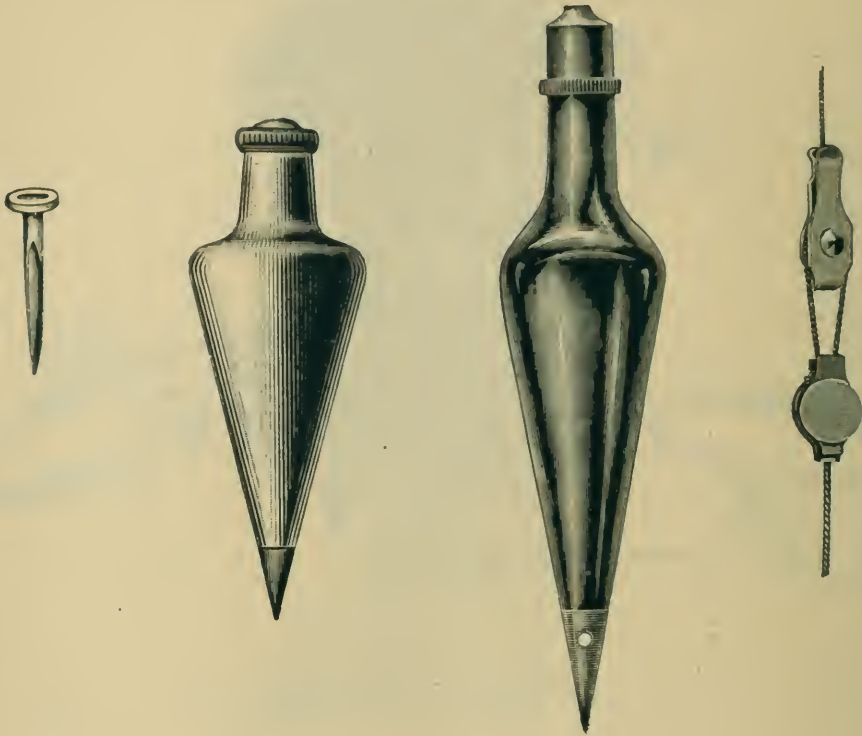
ARROWS.



No. 6030.

6030.	Steel Arrows,	W. G. 6,	bright,	14 in.,	11 in set	.....	per set	\$1.50
6031.	"	" 9,	"	14 "	11 "	.....	"	1.00
6032.	"	" 9,	japd.	12 "	11 "	.....	"	1.20
6033.	"	" 11,	bright,	12 "	11 "	.....	"	.90
6034.	Brass	" 6,	"	12 "	11 "	.....	"	2.00
6035.	Iron	" 9,	"	14 "	11 "	.....	"	.60

PLUMB BOBS.



No. 6047.

6036.

6039.

6051.

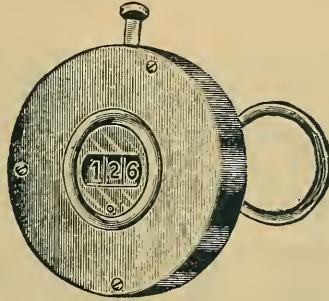
6036.	Brass Plumb Bob, about 6 ounces, Steel Point, Screw Cap . . .	each	\$1.50
6037.	“ “ “ 8 “ “ “ “ . . . . .	“	1.75
6038.	“ “ “ 12 “ “ “ “ . . . . .	“	2.00
6039.	“ “ “ 14 “ “ “ “ with long neck . . . . .	“	2.25
6040.	Brass Plumb Bob, about 24 ounces, with long neck . . . . .	“	3.25
6041.	“ “ “ 32 “ “ “ . . . . .	“	3.75
6042.	“ “ “ 48 “ “ “ . . . . .	“	5.00
6043.	“ “ with concealed Reel, on which the line is wound and held by friction at any point of its length . . . . .	“	2.50
6044.	Iron Plumb Bob, about 7 ounces . . . . .	“	.75
6045.	Common Brass Plumb Bob, Steel Point, about 8½ ounces . . . . .	“	1.00
6046.	“ “ “ “ “ 11½ “ . . . . .	“	1.20
6047.	Stake Tacks, galvanized . . . . .	per 2-oz box	.15

These tacks have an indentation in the surface of the head, to guide the point of the plumb bob in exactly indicating position.

6048.	Plumb Bob Cord, best linen, thin, medium or thick . . . . .	per yard	.02
6049.	“ “ best braided silk . . . . .	“	.06
6050.	Smith's Plumb Bob Adjuster, complete with line . . . . .	each	1.00



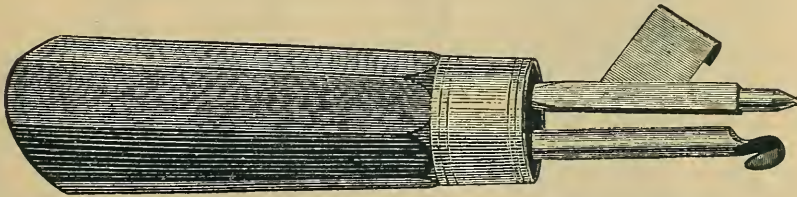
## TALLYING MACHINE.



No. 6051.

6051. Tallying Machine, nickel plated, for keeping count by pressing on a lever; registers to 999 . . . . . each \$2.50

## TIMBER SCRIBE.

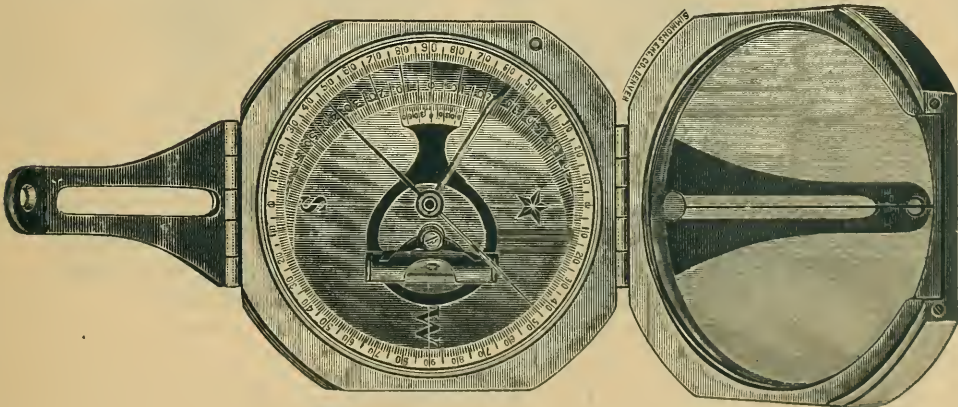


No. 6052.

6052. Timber Scribe, or Tree Marker, small . . . . . each \$1.00  
6053. " " " " large . . . . . " 1.25

## THE BRUNTON PATENT POCKET MINE TRANSIT.

Dimensions,  $2\frac{3}{4} \times 2\frac{3}{4} \times \frac{15}{16}$  in. Case of Aluminum; weight, 8 ounces.



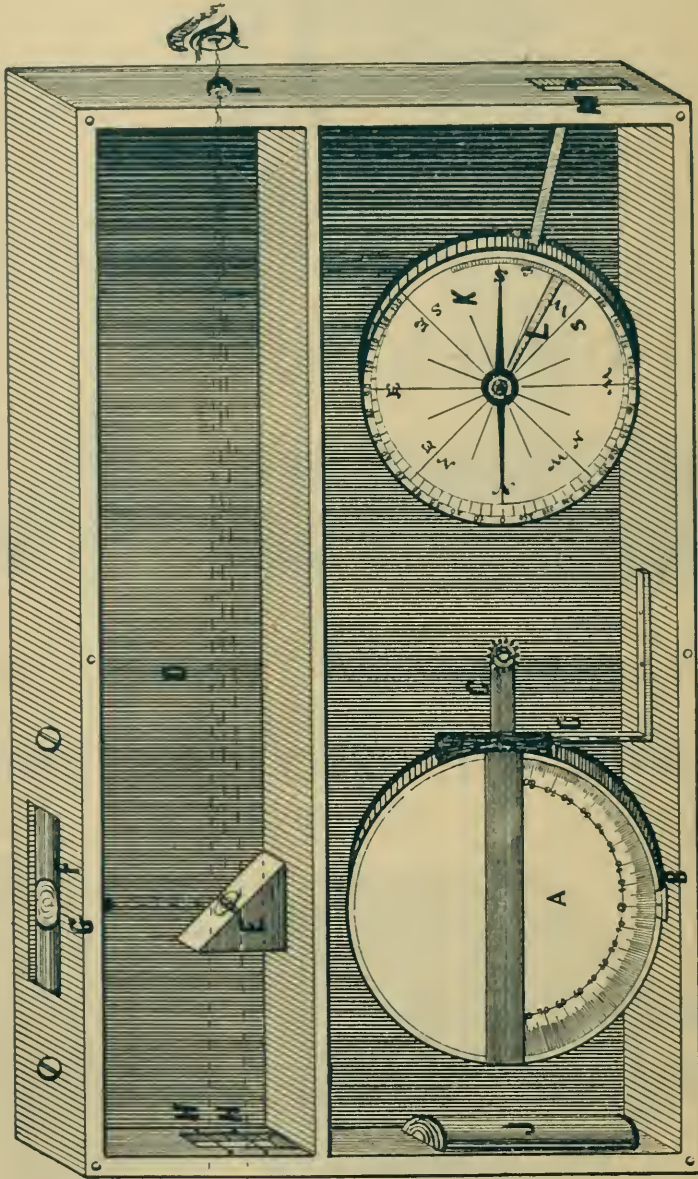
No. 6054.

Plan of the Transit when used for taking courses or horizontal angles and showing the line on mirror bisecting the openings of the reflected sight.

6054. A Pocket Instrument which takes the place of a Sighting Compass, Clinometer, Prismatic Compass and Abney Level or Locke Level, weight, 8 ounces . . . . . each \$25.00

# ALUMINUM MINING CLINOMETER.

Combined with Level, Compass and Telemeter.



No. 6055.

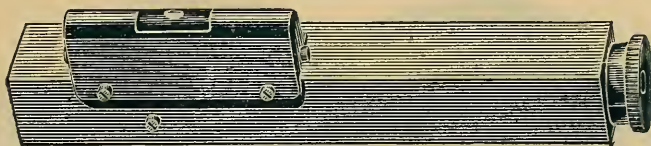
DIAGRAM (front plate removed).

DIMENSIONS: 6'' x 3½'' x 3¼''      WEIGHT: 11 ounces.

No. 6055. In Leather Case.....each \$12.50

- A—Metallic Clinometer Dial.
- B—Metallic Indicator.
- C—Metallic Stop for Clinometer.
- D—Level Sights.
- E—Prismatic Reflector.
- F—Level Bubble.
- G—Center Wire.
- HH—Telemeter Wires set 1-25.
- I—Eye Piece.
- J—Vertical Bubble.
- K—Compass.
- L—Stop Bar for Compass.
- M—Stop Button for Compass.

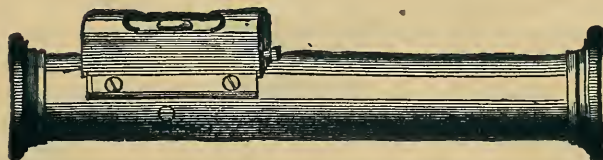
## HAND LEVELS.



No. 6056.

6056. Square Hand Level, in leather case.....each \$4.50

## LOCKE'S HAND LEVELS.

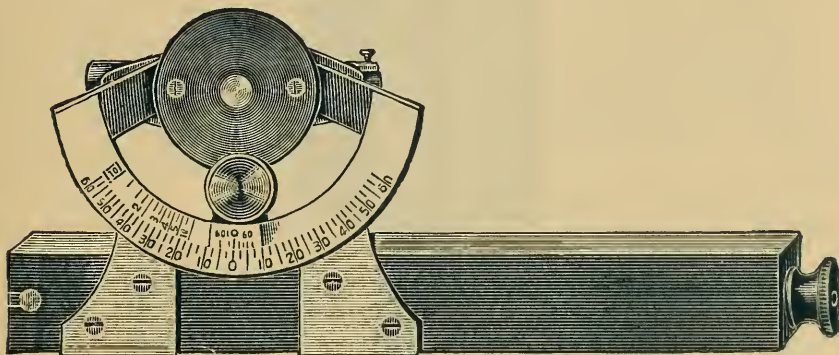


No. 6058.

6058. German Silver, in case, 5 in.....each \$7.50

6059. Bronze, in case, 5 inch.....“ 6.00

## ABNEY'S HAND LEVELS AND CLINOMETERS.



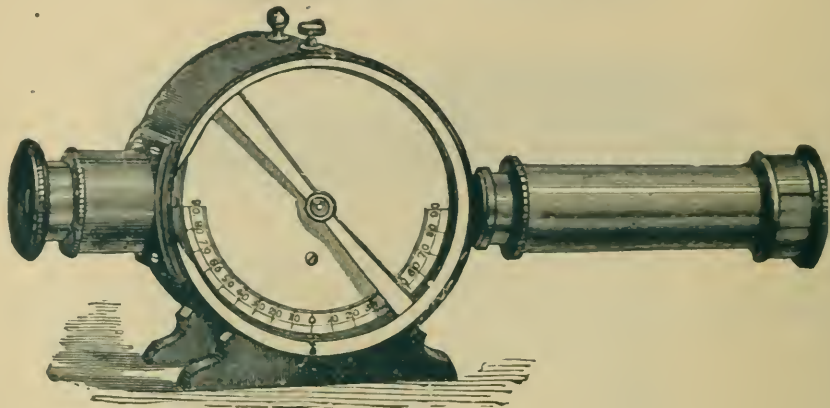
No. 6060.

6060. With Divided Arc, to show angles, in case.....each \$13.50

6062. “ “ “ “ and with Bar Needle  
Compass and Socket for Jacob-staff, in case.....“ 18.00

These instruments are used in getting the height of buildings, trees, hills, etc., and also for fixing the slopes or gradients of rails for railways, the rise and fall for drainage purposes, and all operations where angular distance or inclination of surface is wanted.

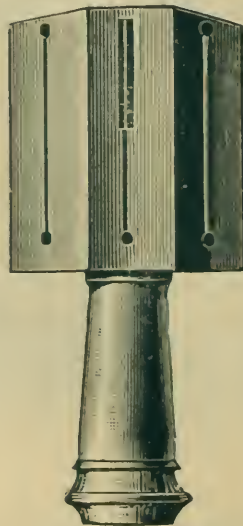
POCKET ALT-AZIMUTH.



No. 6063.

6063. For Travelers and Military Surveyors, altitudes, azimuths, compass bearings, Clinometer degrees and levels, all are obtainable by this handy and accurate little instrument. The advantages of its use have been so increased by the recent addition of an excellent telescope as to make it perfect for the various purposes to which it can be applied. Size of instrument  $6\frac{1}{2}$  inches long,  $2\frac{1}{2}$  inches in diameter,  $1\frac{1}{8}$  inches thick, weight 13 ounces, in Morocco case..... each \$51.00

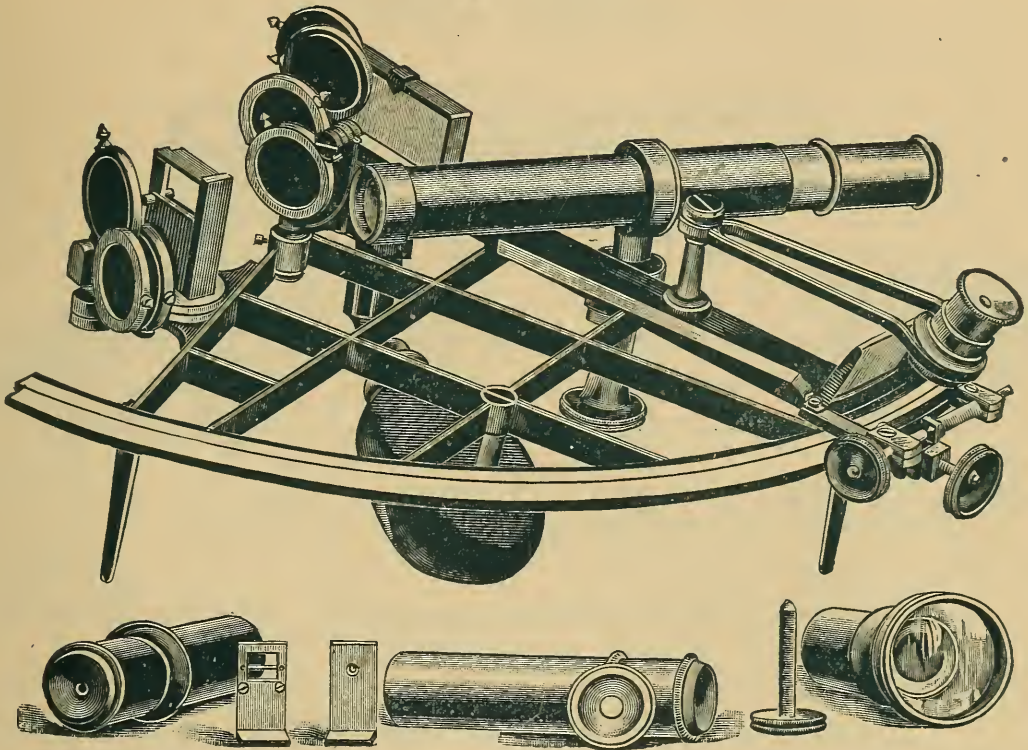
CROSS STAFF-HEADS.



No. 6064.

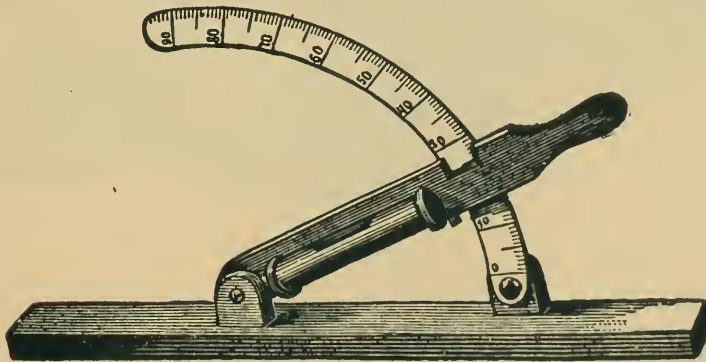
6064.	Octagonal, for Jacob-staff, $2\frac{1}{2}$ -in., in case.....	each	\$ 2.75
6065.	“ “ “ with magnetic compass, 3-inch needle $1\frac{3}{4}$ inch.....	“	4.75
6066.	Like 6065, with vertical axis and divided circle, to take angles, $3\frac{3}{8}$ inch, needle $2\frac{1}{4}$ in.....	“	11.50

SEXTANT.



No. 6067.

6067. Sextant, radius 7 inches, 145°; four sun-glasses between the large and the small reflecting mirror, and three sun-glasses behind the small reflecting mirror, all of which can be turned on their axis 180°; graduation on solid silver, reading to 10''; telescope  $\frac{3}{4}$ -inch aperture; two astronomical eyepieces with powers of 6 and 10 dia. One Galilean telescope with extra large objective, power 3 dia.; one fixed reading glass; two sights for examination and correction of the large reflecting mirror. All complete in box ..... each \$120.00



No. 6068.

6068. Clinometer or Slope Level, of brass,  $8\frac{3}{8}$  inch long, with folding arc, and vernier reading to 3 minutes, in substantial case. .... each \$12.00

**POCKET LEVEL.**



No. 6069.

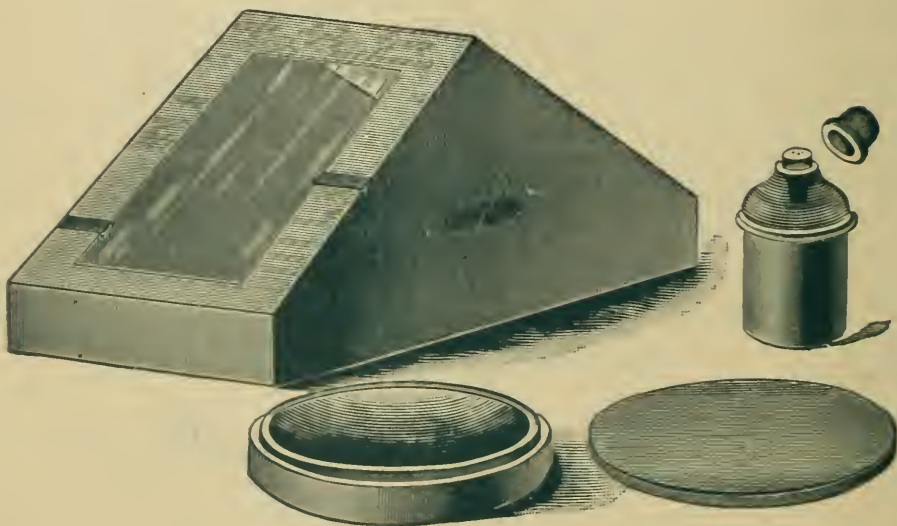
6069. Bubble mounted in brass tube upon brass base.

	3	6	9	12 inches.
Each.....	\$.50	1.00	1.75	2.50

6069A. Extra fine ground spirit-level, mounted in Brass tube and rendered adjustable to the base by capstan screws; very delicate.

	6	9	12 inches.
Each.....	\$.75	9.00	10.50

**ARTIFICIAL HORIZON.**

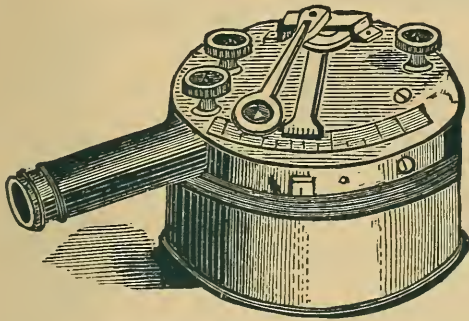


No. 6070.

6070. Mercury Horizon, of boxwood, with silver-plated copper bowl; bottle of boxwood for mercury; brass rectangular roof, with glass covers made of parallel glass. All complete, packed in a box .....each \$50.00

POCKET SEXTANT.

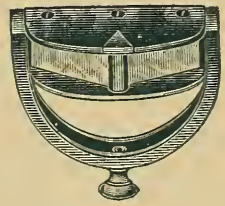
Angle Mirrors.



No. 6071.



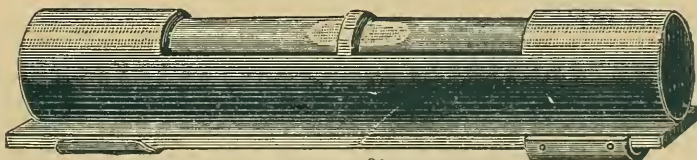
6072.



6074.

- |       |   |      |         |
|-------|---|------|---------|
| 6071. | Pocket Sextant, best quality, graduated on silver to 30 minutes, with telescope and tangent, adjusting screw, etc., in leather sling case . . . . . | each | \$42.50 |
| 6072. | Angle Mirror, for Angles of 90 degrees, $\frac{7}{8} \times 1\frac{1}{4} \times 2$ in., in Morocco case. . . . .                                    | "    | 5.00    |
| 6073. | Same as No. 6072, but $1\frac{1}{8} \times 1\frac{5}{8} \times 2\frac{1}{2}$ in., in Morocco case. . . . .  | "    | 6.00    |
| 6074. | " " but $1\frac{1}{4} \times 1\frac{1}{2} \times 1\frac{5}{8}$ in., with cover folding back, to serve as handle. . . . .                            | "    | 6.00    |

McCULLOUGH TAPE LEVEL.

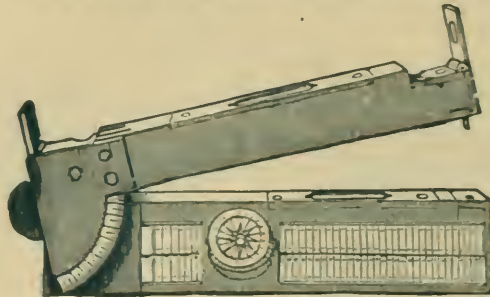


Pat. July 26, 1892.

No. 6075.

6075. This little device, a Californian production, is meeting with deserved favor wherever used. The above cut is full size; the weight of the level is only one ounce. It is used by clamping to the tape, about one foot from the handle, by means of the two springs shown, and can be attached and detached instantly . . . . . each \$1.00

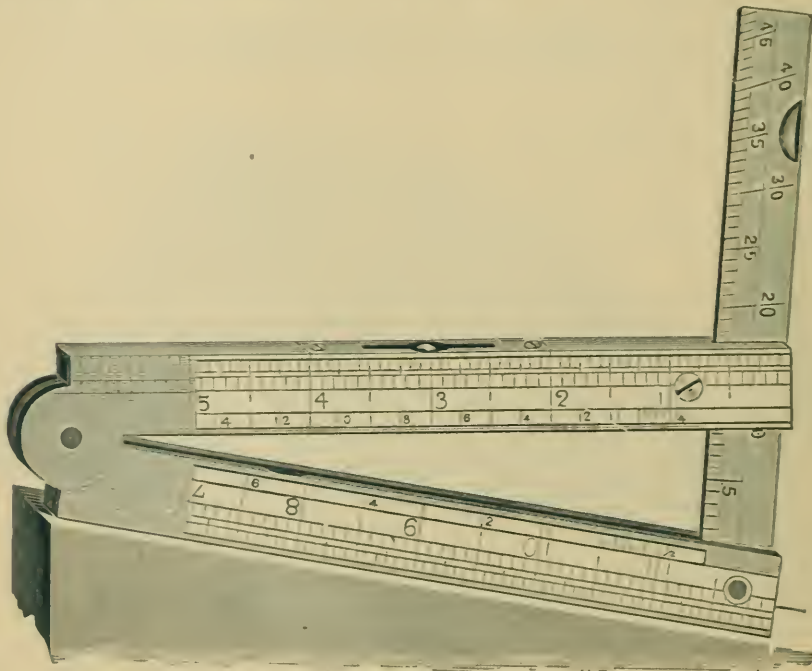
## CLINOMETERS.



No. 6076.

6076. Boxwood Clinometer, with 2 levels, Compass and Inclination Scale, 6 inch, in leather pocket case.....each \$ 9.00  
 6077. Boxwood Clinometer, with 2 levels, Compass and Inclination Scale, 6 inch, with sights, in leather pocket case.. “ 12.00

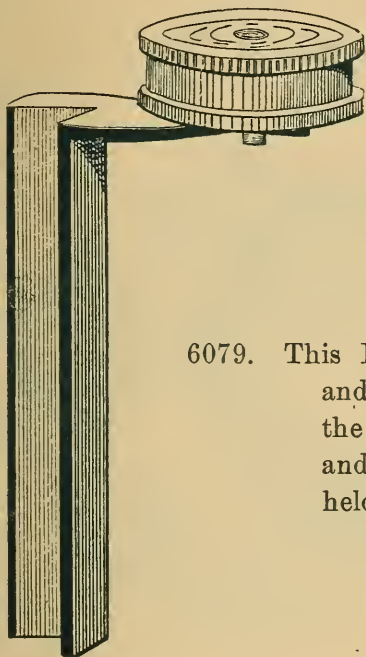
The Inclination Scale marked on these Clinometers gives the value of any angle, as follows: The angle having been ascertained from the divided arc upon the instrument, refers to that degree in the column marked "Angle," and opposite in another column will be found the rise or fall of any given measured distance; for instance, say the degree shown on the divided arc is 18, opposite to this number on the scale is 3, thus indicating one part fall or rise in three, or 1 inch in 3 inches, or 1 foot in 3 feet.



No. 6078.

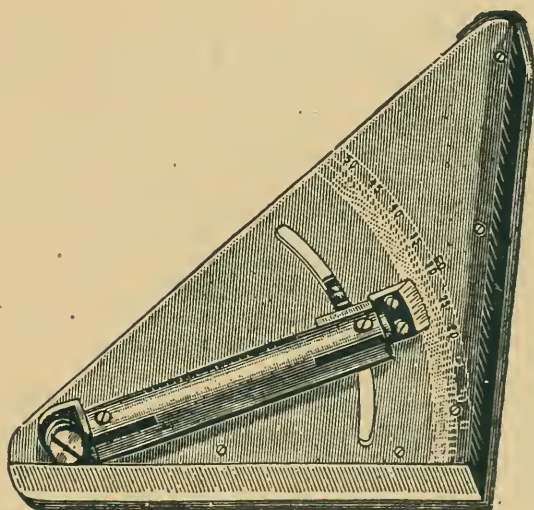
6078. The engraving illustrates an instrument invented by L. C. Stephens, and patented by him, which combines in itself a Carpenter's Rule, Spirit Level, Square, Plumb, Bevel, Inclinometer, Brace Scale, Draughting Scale, T Square, Protractor, Right Angled Triangle, and with a straight edge can be used as a Parallel Ruler, all the parts of which in their separate application are perfectly reliable..each \$2.00





**ROD LEVEL.**

6079. This Rod-level consists of a Universal level and a V shaped handle permits one to use the rod-level on any round, or angular pole, and is used for determining that the rod is held perpendicular ..... each \$3.00

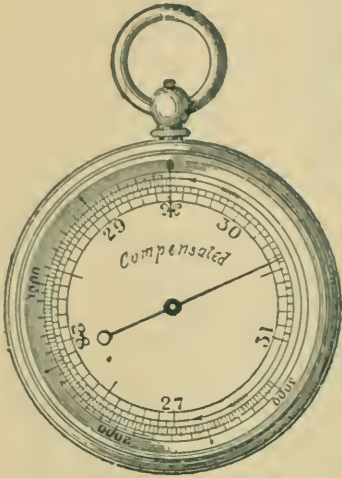


No. 6080.

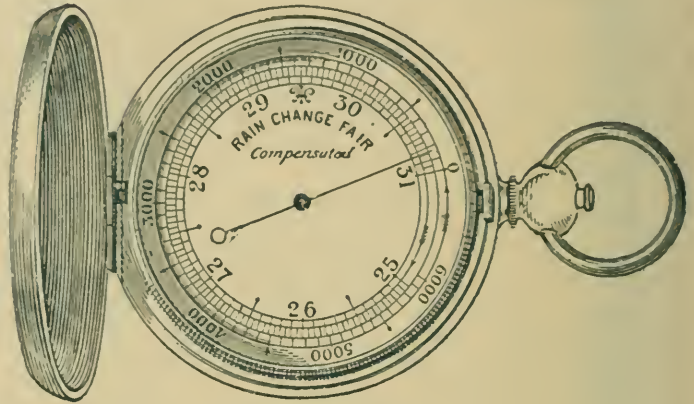
6080. Clinometer or Slope Level, of brass, triangular frame, 4½-inch side, divided to ½ degrees, vernier reading to 3 minutes, in substantial case ..... each \$10.00

# ANEROID BAROMETERS.

For Measuring Heights and Atmospheric Pressure.



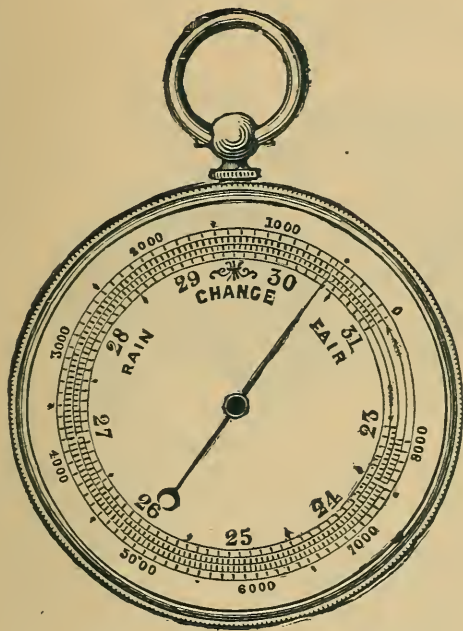
No. 6084.



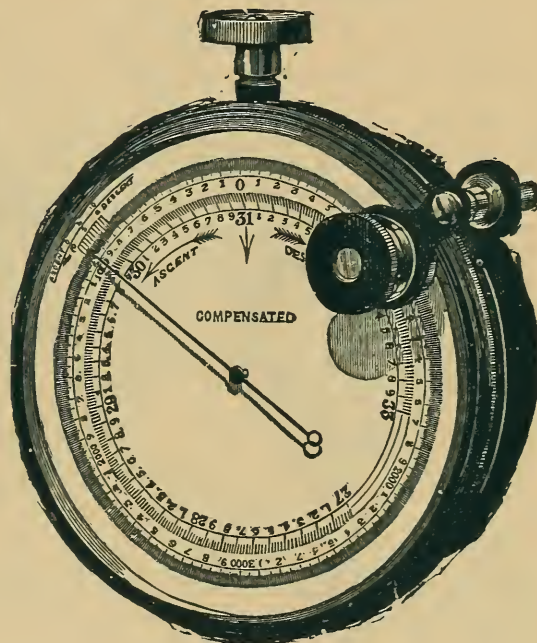
6096.

6082.	Watch Size, Gilt Case, 1 $\frac{3}{4}$ inch Diameter, Silvered Metal Dial, Revolving Altitude Scale 8,000 feet, in Morocco Case .....	each	\$12.00
6084.	Same as No. 6082, but superior quality and Scale 3,000 feet, compensated for temperature, in Morocco Case ....	"	18.50
6085.	Same as No. 6084, but Altitude Scale 8,000 feet.....	"	17.75
6086.	" No. 6084, " " " 18,000 " .....	"	20.50
6087.	Watch Size, Gilt Case, 1 $\frac{3}{4}$ inch Diameter, Silvered Metal Dial, Altitude Scale 8,000 feet, Bar-needle Compass on reverse (to detach), compensated for temperature, in Morocco Case .....	"	26.00
6090.	Same as No. 6087, but Altitude Scale 18,000 feet.....	"	27.50
6092.	" No. 6090, but Stem-winding Adjustment to Revolving Ring.....	"	34.00
6094.	Watch Size, Nickel Spring Hunting Case, 1 $\frac{3}{4}$ inch, Silvered Metal Dial, Revolving Altitude Scale 3,000 feet, compensated for temperature.....	"	20.00
6096.	Same as No. 6094, but Altitude Scale 8,000 feet.....	"	19.00
6098.	" No. 6094, " " 18,000 " .....	"	22.00

ANEROID BAROMETERS.



No. 7002.



7018.

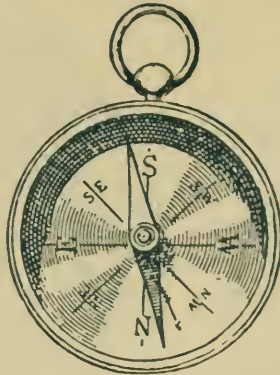
- |       |   |      |         |
|-------|---|------|---------|
| 7000. | Pocket Size, Gilt Case, 2½ inch Diameter, Silvered Metal Dial, Revolving Altitude 3,000 feet, compensated for temperature, in Morocco Case . . . . .  | each | \$19.00 |
| 7002. | Same as No. 7000, but Altitude 8,000 feet. . . . .  | "    | 18.00   |
| 7004. | " No. 7000, " " 18,000 " . . . . .  | "    | 20.00   |
| 7006. | Barometer, English Government Pattern, 5 inch Diameter, Bronzed Case, best Engraved Silver Dial, Raised Ring for divisions, Curved Thermometer, Altitude 6,000 feet, Revolving Index, compensated for temperature, in Morocco Case. . . . .   | "    | 29.00   |
| 7008. | Same as No. 7006, but Altitude 18,000 feet in Morocco Case . . . . .  | "    | 35.00   |
| 7010. | Surveying Barometer, 3½ inch Diameter, Bronzed Case, best Engraved Silvered Dial, Altitude 5,000 feet, with Rack Vernier Scale, reading to 5 feet, compensated for temperature, in Leather Sling Case . . . . .                               | "    | 48.00   |
| 7012. | Same as No. 7010, but reading to 15,000 feet. . . . .   | "    | 58.00   |
| 7014. | " No. 7010, 5 inch Diameter, Bronzed Case, Silvered Metal Dial, Raised Ring for divisions, Altitude 5,000 feet with Rack Vernier Scale, reading to 1 foot, and Magnifying Lens, in Leather Sling Case . . . . .                               | "    | 51.00   |
| 7016. | Same as No. 7014, but Altitude 15,000 feet, in Leather Sling Case . . . . .   | "    | 70.00   |
| 7018. | Mining Barometer, 5 inch Diameter, Silvered Metal Dial, Raised Ring for divisions, Altitude 2,000 feet below and 4,000 feet above sea-level, with Rack Vernier Scale, reading to 1 foot, and Magnifying Lens, in Leather Sling Case . . . . . | "    | 51.00   |

# MAGNETIC COMPASSES.

## POCKET COMPASSES.



No. 7020.

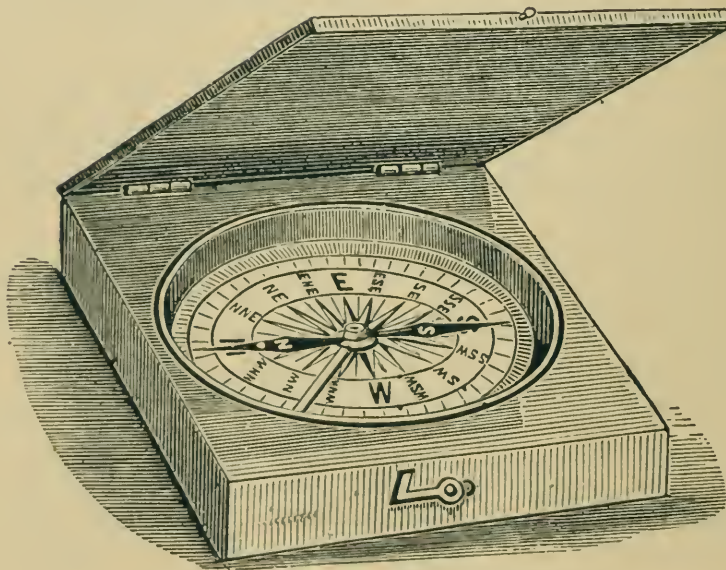


7022.



7024.

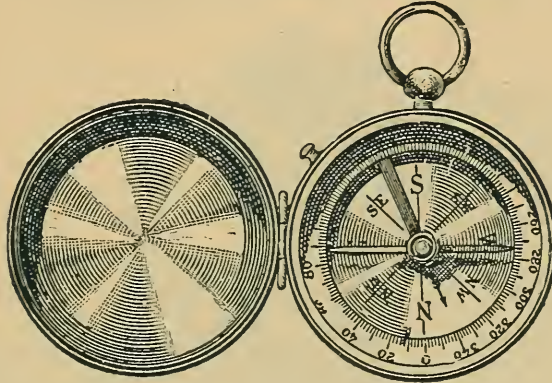
7020.	Pocket Compass, Brass, Watch Pattern, Paper Dial, each	\$	1¼	1¾	1¾ in.
			.20	.25	.30
7022.	“ “ “ “ Metal “ “		1	1¾	1¾ in.
			.40	.45	.50
7024.	“ “ “ “ “ “ “		1	1¾	1¾ in.
			.50	.55	.60



No. 7025.

7025-A.	Mahogany Case, 3 × 3-inch metal dial, 2-inch needle, with stop, jeweled	each	\$1.40
7025-B.	Mahogany Case, 3 × 3-inch metal dial, 2-inch needle, with stop, jeweled, full circle division	“	1.50
7025-C.	Mahogany Case, 3 × 3-inch metal dial, 2-inch bar needle, with stop, jeweled, full circle division	“	2.40

MAGNETIC COMPASSES.



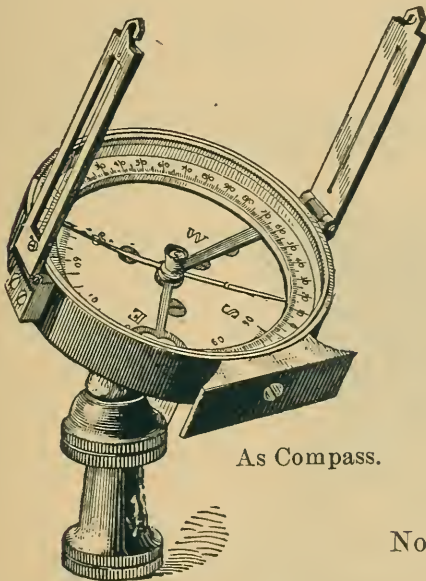
No. 7026.

7026. Pocket Compass, Brass, Watch Pattern, Hinged Cover, Metal Dial, divided to 2 Degrees, Stop to Needle, Agate Center.

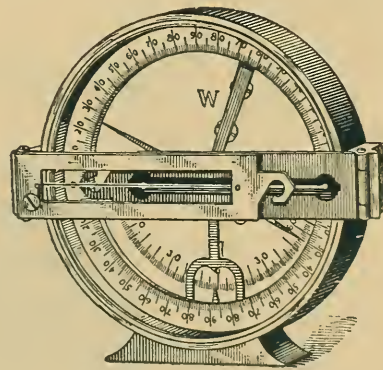
Each.....  $1\frac{3}{8}$   $1\frac{3}{4}$  in.  
\$1.50 1.75

7028. Pocket Compass, Nickel Plated, Watch Pattern, Hunting Case, Spring Cover, Metal Dial, Automatic Stop, Jeweled, English Bar Needle, full circle divisions.

Each.....  $1\frac{3}{4}$  2  $2\frac{1}{4}$  in.  
\$4.00 5.00 6.00



As Compass.



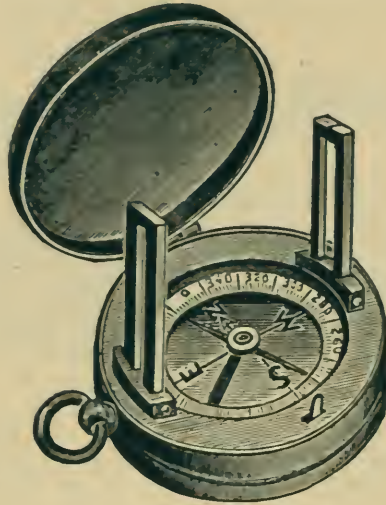
As Clinometer.

No. 7030.

7030. Surveying Compass and Clinometer, Bronzed, with Folding Sights ending in hooks, graduated to degrees, with Ball Joint and Socket for Jacob-staff mounting, Needle about 2 in., in Mahogany Case..... each \$12.00

7031. Surveying Compass and Clinometer, Bronzed, with Folding Sights ending in hooks, graduated to degrees, with Ball Joint and Socket for Jacob-staff mounting, Needle about  $2\frac{1}{2}$  in., in Mahogany Case ..... " 13.50

SIGHT COMPASSES.

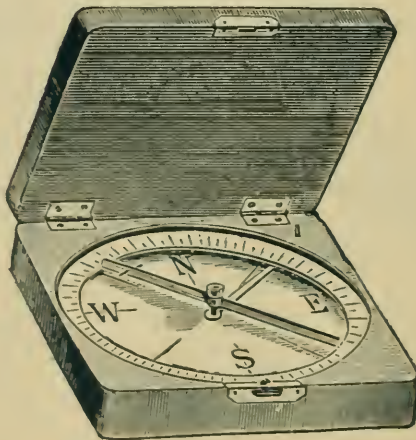


No. 7034.

7034. Bronzed Pocket Compass, Watch Pattern, with Folding Sights, stop to needle.

	2	2 $\frac{3}{8}$	2 $\frac{3}{4}$ in.
Each.....	\$4.50	5.75	7.00

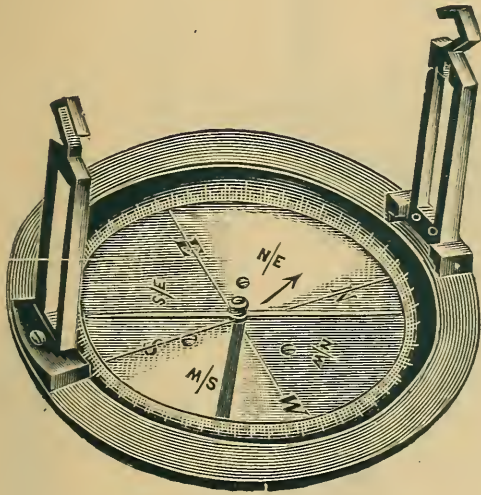
MILITARY COMPASS.



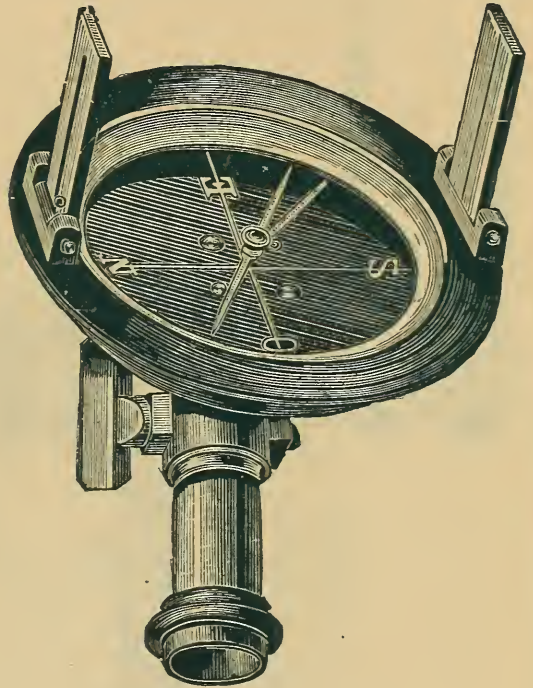
No. 7035.

7035. Military Compass, 3 x 3 inches, 2-inch needle, with agate centre and automatic stop, divided to degrees on raised metal ring. In polished mahogany box ..... each \$3.50

SURVEYING COMPASSES.



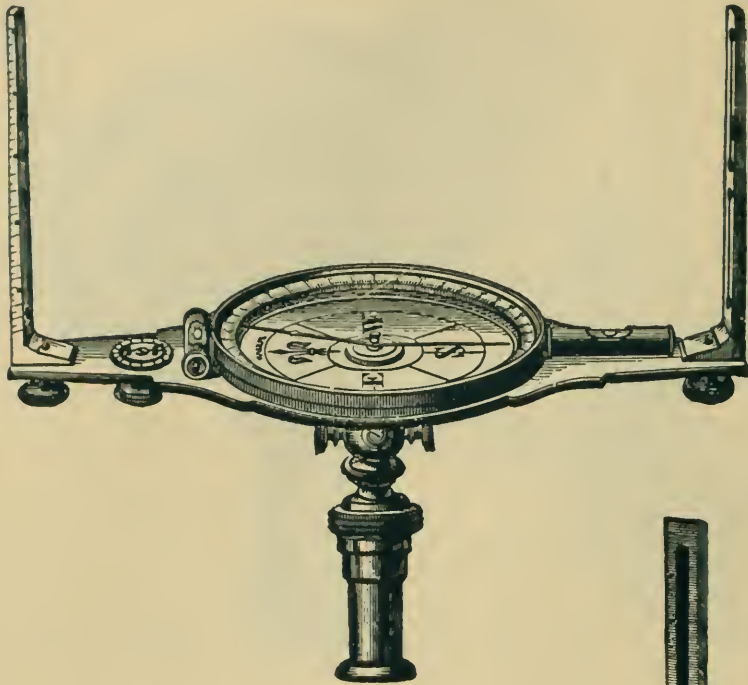
No. 7036.



No. 7040.

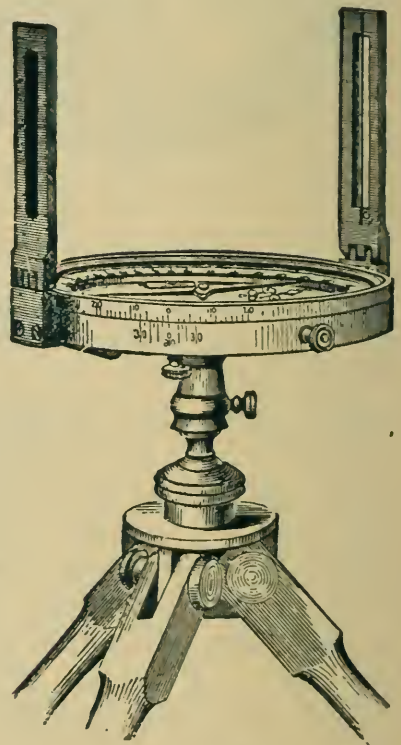
7036.	Surveying Compass, with Folding Sights ending in hooks, graduated to 1 degree, Needle 2 inch, in Mahogany Case. . . . .	each	\$ 6.00
7037.	Same as No. 7036, Needle 2½ inch, in Mahogany Case . . . . .	“	7.00
7038.	Same as No. 7036, “ 2½ “ “ . . . . .	“	8.00
7040.	Surveying Compass, with Folding Sights, graduated to 1 degree, with Ball Joint and Socket for Jacob-staff mounting, Needle 2½ inch, in Mahogany Case. . . . .	“	10.00
7042.	Same as No. 7040, Needle 3½ inch, in Mahogany Case. . . . .	“	12.00
7044.	Surveying Compass, with Folding Sights ending in hooks, graduated to 1 degree, with two Bubbles, Ball Joint and Socket for Jacob-staff mounting, Needle 2½ inch, in Mahogany Case. . . . .	“	13.50
7046.	Same as No. 7044, Needle 3½ inch, in Mahogany Case. . . . .	“	14.50
7048.	Same as No. 7044, “ 4½ “ “ “ . . . . .	“	16.00

SURVEYING COMPASSES.



No. 7054.

- 7054. Surveyor's Compass, 4-in. Needle, two straight Levels, Jacob-staff mounting, Brass Cover, Out Keeper, sights graduated for taking angles of elevation or depression, in box.....each \$30.00
- 7056. Same as No. 7054, but with 5-in. Needle.....each 35.00
- 7058. Same as No. 7054, but with 6-in. Needle.....each 40.00



No. 7060.

- 7060. Vernier Compass, 3½-in. Needle, Folding Sights, two Levels—
  - With Tripod .....each \$21.00
  - Without Tripod..... " 16.00
- 7062. Same as No. 7060, but with 4½-in. Needle—
  - With Tripod ..... " 23.00
  - Without Tripod..... " 18.00

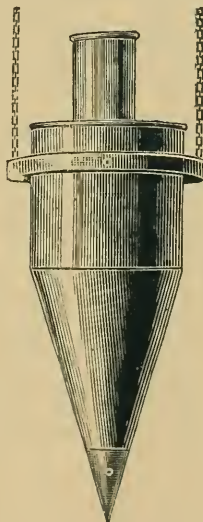


SURVEYING COMPASSES.



No. 7064.

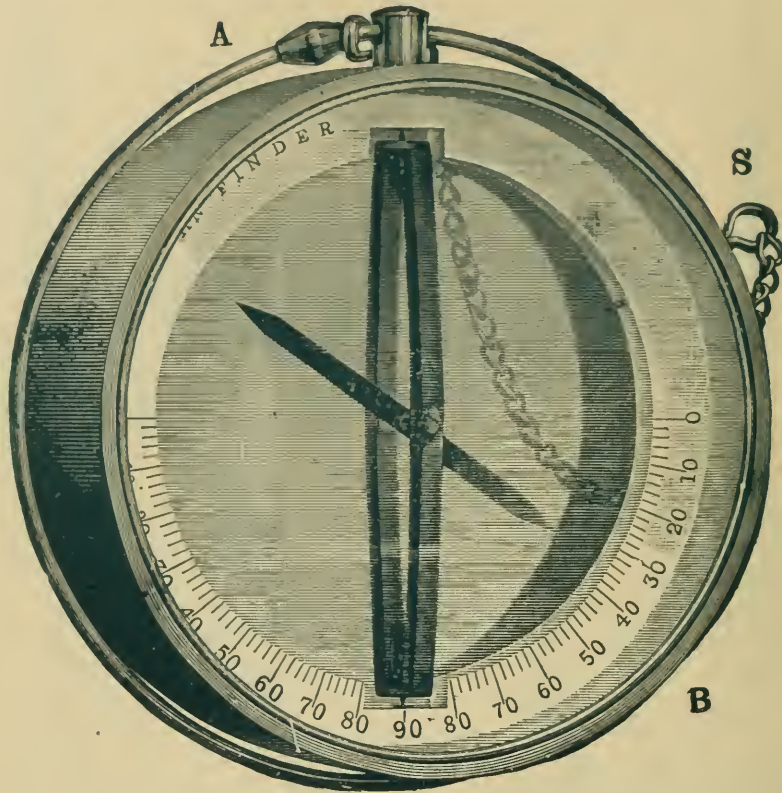
7964. Railroad Compass. The Railroad Compass has the Main Plate, Levels, Sights and Needle, Jacob-staff Mountings, Brass Cover, Out Keeper, and Vernier for setting off the variations of the needle of the Ordinary Surveyors' Compass, but has also underneath the main plate a divided circle or limb, by which horizontal angles to single minutes can be read independently of the needle, in Mahogany Box with Lock and Strap, 5½-in. Needle, one Vernier to Limb ..... each \$65.00
7065. Same as No. 7064, but with 5-in. Needle and two Verniers to Limb ..... " 75.00
7066. Same as No. 7064, but with 5½-in. Needle and two Verniers to Limb ..... " 80.00



No. 7068.

7068. Plummet Lamp of Brass, with hardened steel point and chain for suspending, 20 oz., in Mahogany Box ..... each \$10.00
7069. Same as No. 7068, two in one Mahogany Box ..... per set 18.00

MINERS' COMPASS.

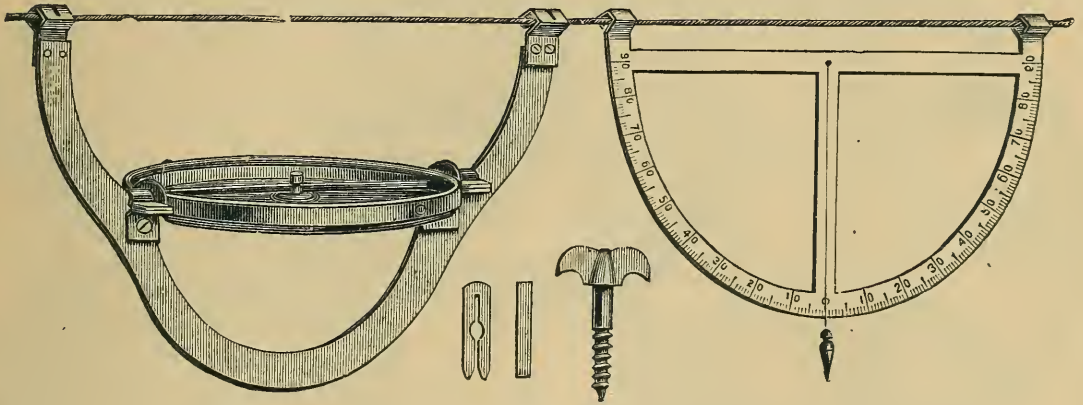


No. 7070.

7070. Miners' Compass, for tracing iron ore. This consists of a dipping needle  $2\frac{1}{2}$  in. long, mounted in a brass ring graduated  $0^\circ$  to  $180^\circ$  in each direction, and having plate glass top and bottom. When used for tracing ore, the prospector should hold the ring in his hand and keep the needle north and south, standing with his face to the west; in case ..... each \$12.00

7071. Meridian Finder, or Miners' Compass,  $3\frac{1}{2}$  in. in diameter. The advantage of this compass is that the needle has a motion in azimuth as well as in altitude, thus insuring the needle finding its true meridian. Also, that the needle is suspended in such a way that it turns easily with nothing to impede its revolution; by this means you have a perfect test in reversing the needle. Another advantage is, that the needle is and can be made more sensitive than other needles of this kind; in case..... " 15.00

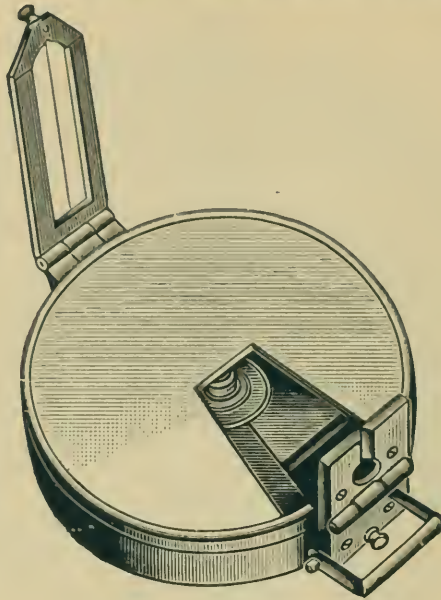
MINERS' COMPASS.



No. 7072.

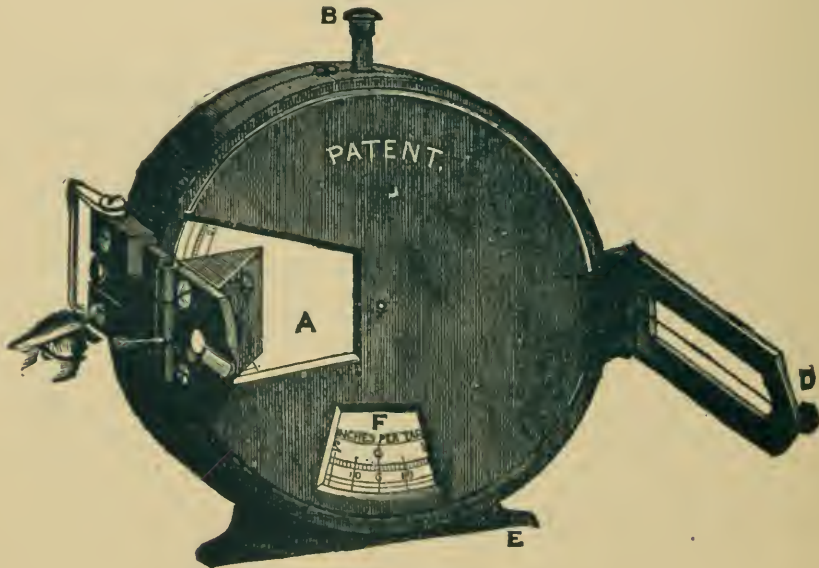
7072. Mining Compass and Clinometer, Compass graduated to half degrees, suspended in a frame with hooks, by a universal joint (gimbal), needle about  $3\frac{1}{2}$  in., with stop. Clinometer 7 in. diameter, graduated to half degrees, with hooks and plumb bob, screws for cord, and brass stop, in chamois-lined leather sling case . . . . . each \$50.00
- Station bucks . . . . . per pair 5.00
- Waterproof cord, 80 feet, on reel. . . . . 5.00

PRISMATIC COMPASSES.



No. 7074.

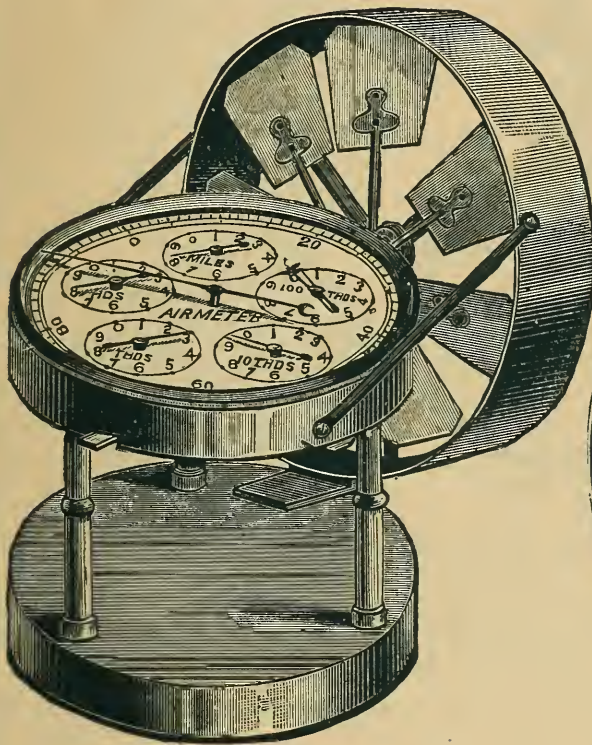
- 7074. Hutchinson's Prismatic Compass, Bronzed, of improved pattern, nearly inclosed Top, floating Card Dial, 2 inch, in Morocco Case .....each \$15.00
- 7076. Same as No. 7074, 3 inch, in Leather Sling Case ..... " 17.00



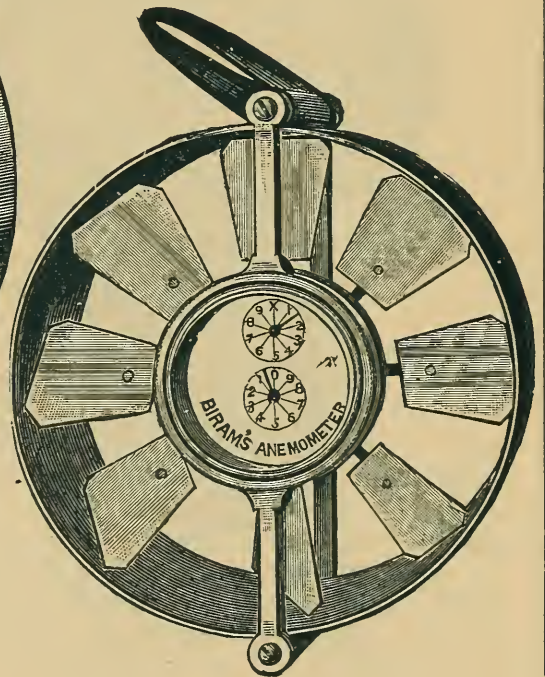
No. 7078.

- 7078. Patent Combined Prismatic Compass and Clinometer, Bronzed, Pocket Size, Compass Dial and Altitude Circle, 2½ inch, Azimuth Glasses, consisting of Shades and Mirrors, Altitude Circle with a Scale of rise and fall in inches per yard, in Leather Sling Case.....each \$27.00

# ANEMOMETERS OR WIND GAUGES.



No. 7080.



7082.

For measuring the velocity of air currents in mines, sewers, hospitals, public and private buildings, etc. Each instrument is tested separately, and has a correction table for variations, showing the amount of air, in feet, to be added and deducted.

7080. The Portable Air Meter, in Wooden Case.....each \$22.50

Diameter of fan wheel  $2\frac{3}{4}$  in., with disconnector, which is extensively used for testing the ventilation of hospitals, schools and public buildings, forms also an admirable Pocket Anemometer for tourists. The indications are obtained by the revolution of a series of fans (similar to those of Biram's Anemometer), acting first upon a long hand capable of recording the velocity of fifty feet per minute on the large dial, divided to 100 feet, and then successively by a train of wheels on the indices of five smaller dials, recording, respectively, 100, 1,000, 100,000 and 10,000,000 feet, or 1,893 miles.

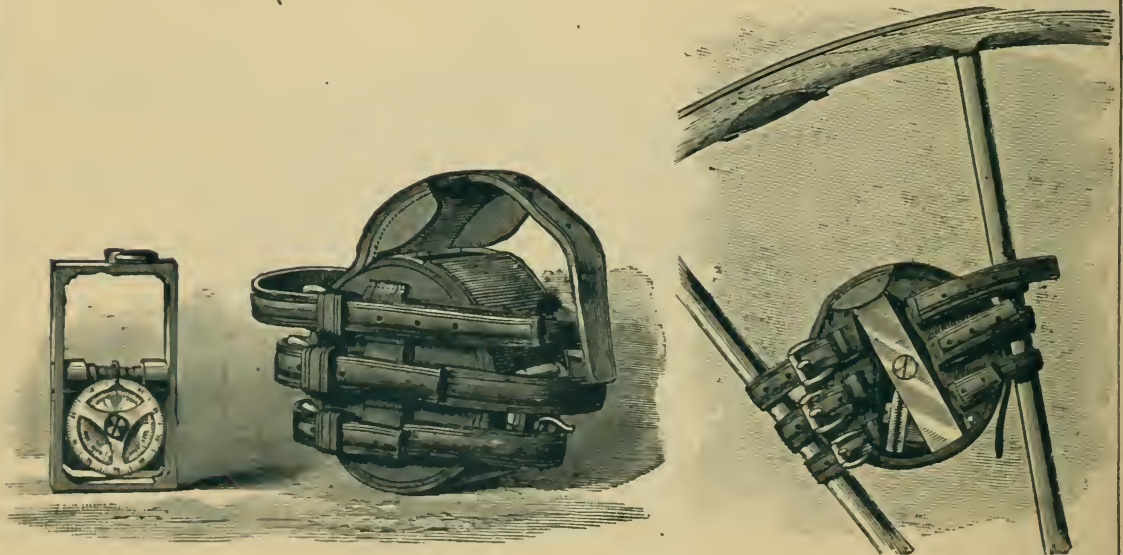
- 7081. Same as No. 7080, with Timer, in Wooden Case.....each \$26.00
- 7082. Biram's Anemometer, 2 Dials, 4 in. Diameter, reading to 1,000 feet, with Disconnector, in Wooden Case..... " 21.00
- 7084. Biram's Anemometer, 2 Dials, 6 in. Diameter, reading to 1,000 feet, with Disconnector, in Wooden Case..... " 22.50
- 7086. Biram's Anemometer, 4 Dials, 6 in. Diameter, reading to 10,000,000 feet, with Disconnector, in Wooden Case.... " 33.00

PEDOMETERS AND ODOMETERS.



No. 7093.

- |       |  |      |         |
|-------|--|------|---------|
| 7090. | Pedometer, Watch Pattern, Nickel Case, registering distances walked to 12 miles .....              | each | \$ 5.00 |
| 7092. | Pedometer, Watch Pattern, Nickel Case, Crystal Back, registering distance walked to 100 miles..... | "    | 6.50    |
| 7093. | Passometer, Watch Pattern, Nickel Case, with 3 hands, registering 25,000 steps.....                | "    | 10.00   |

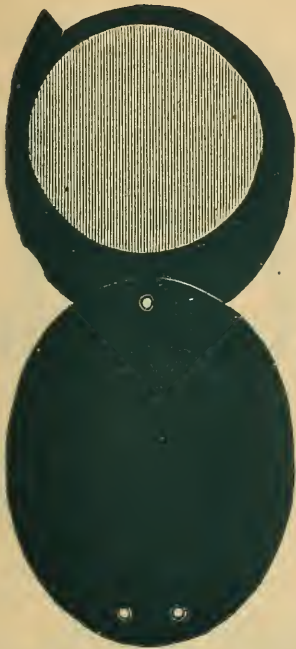


No. 7094.

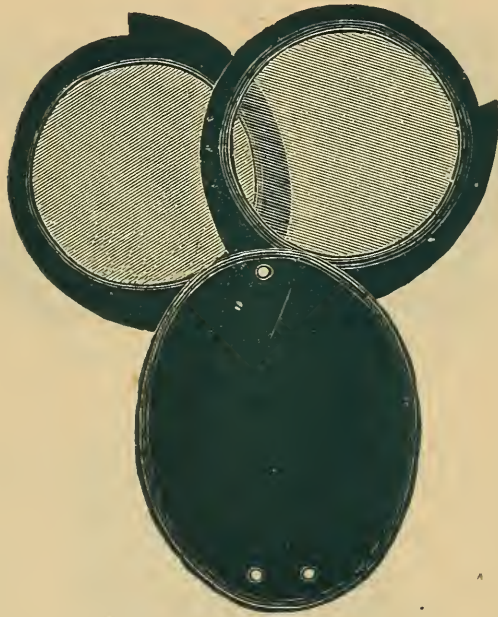
- |       |  |      |         |
|-------|--|------|---------|
| 7094. | Odometer, Inside Dial, with Leather Case and Straps..... | each | \$15.00 |
|-------|--|------|---------|

These Odometers can be attached to any carriage without injury to the wheel, and removed at pleasure. The circumference of the wheel being given, the distance is obtained by multiplying it by the number of revolutions recorded on the dials.

POCKET MAGNIFYING GLASSES.

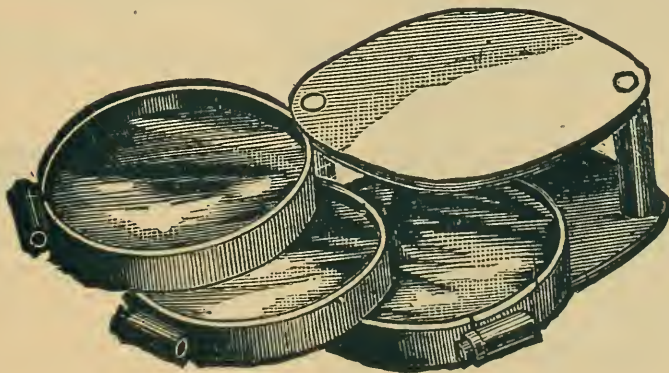


No. 7096.



7098.

7096.	Mounted in rubber, 1 Lens, 1 in. in diameter. ....	each	\$ .35
7097.	“ “ 1 “ 1½ “ “ .....	“	.55
7098.	“ “ 2 “ 1 “ “ .....	“	.60
7099.	“ “ 2 “ 1½ “ “ .....	“	1.00

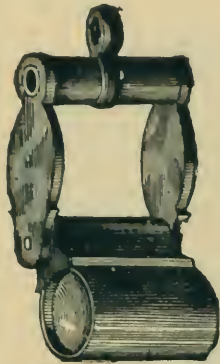


No. 8002.

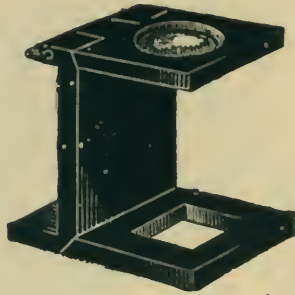
8000.	Mounted in metal, nickel plated, 1 Lens, 1 in. diameter. ....	each	\$ .75
8001.	“ “ “ 2 “ 1 “ “ .....	“	1.00
8002.	“ “ “ 3 “ 1 “ “ .....	“	1.30

Nos. 8000-8002 have a very good magnifying power, and are especially adapted for reading graduations on surveying instruments. Their metal mounting insures great durability.

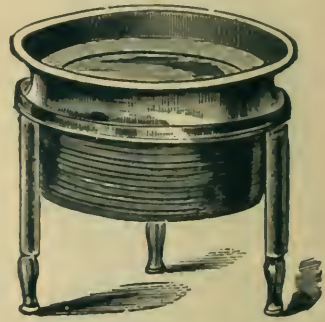
## MAGNIFYING GLASSES.



No. 8004.



8010.

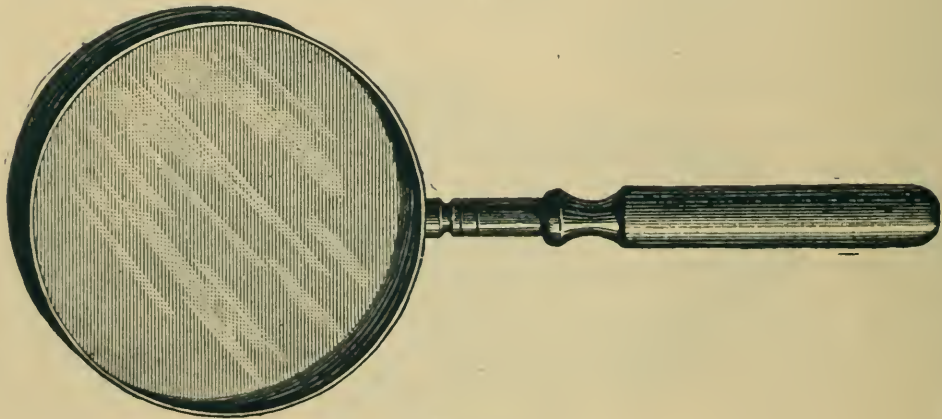


8012.

		Each
8004.	Coddington Lens, metal folding frame, nickel plated, $\frac{1}{2}$ in. diam..	\$1.50
8006.	“ “ “ “ “ “ “ 1 “ ..	2.15
8008.	“ “ “ “ “ “ “ $1\frac{3}{8}$ “ ..	3.50
8010.	Thread Counter, brass frame, $\frac{1}{2}$ in. field ..	.30
8012.	Magnifier, on 3 legs, brass, screw adjustment, 1 in. diam.....	.55

## READING AND PICTURE GLASSES.

Best Quality.



No. 8014.

8014.	Inch .....	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5
	Each .....	\$ .50	.70	1.00	1.10	1.60	2.00	2.70	3.30

These Reading and Picture Glasses, No. 8014, are of superior magnifying power, and substantially mounted in round nickel-plated frames, with polished ebony handles.

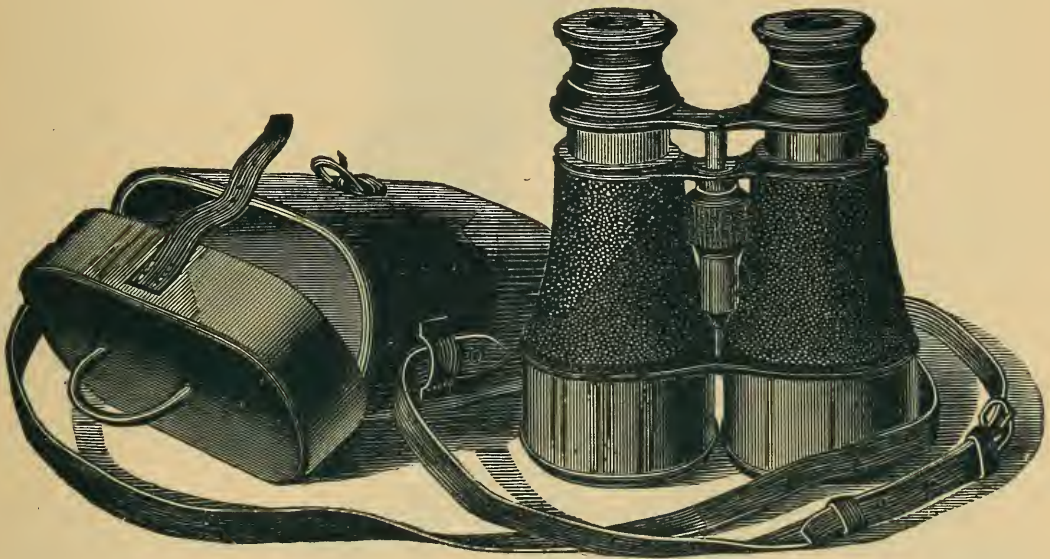


# FIELD AND MARINE GLASSES.

BEST QUALITY.

U. S. Signal Day and Night Glasses Adopted by U. S. Government.

These glasses are supplied with lenses which have never been equaled in definition, so constructed to meet the requirements of long-range purposes, the framework being strong and not liable to get out of adjustment.



No. 8020.

8020. Arched Cross-bars with Sunshades. Black Morocco, Stitched, Oxidized Cross-bars and Slides, in Sole-leather Case, with Strap.

	Lines	21	24	26
Each.....		\$15.00	18.00	20.00

8022. Same as 8020, but with 12 Lenses, 26 Lines.....each \$35.00

## BINOCULAR TELESCOPES.



No. 8023.

These glasses have great power, and where objects are fully illuminated they are unequalled. They are provided with screw-centering and focusing adjustment, and can be adjusted to the different widths of eyes, thereby securing a perfectly even field, and avoiding when looked through, all strain to the ocular muscles.

The performance of a glass of this kind is equal to a Spyglass of very much greater power, because, by the use of both eyes, the field of vision or amount of scenery which a person sees at one time is wonderfully increased. Complete, with sunshades, case, strap, etc. Laval brand.

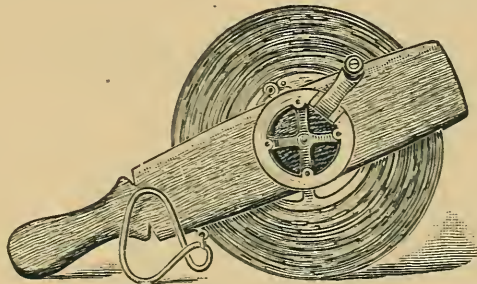
Size No. 8023, height, 9 inches; power, 16.0; field 24. Size, No. 8024, height, 9½ inches; power, 18.0; field, 28. Size, No. 8025, height, 11½ inches; power, 20.5; field, 32.

- |       |   |      |         |
|-------|---|------|---------|
| 8023. | Binocular Telescope, covered with Black Russia Leather,<br>size of Object Glasses, 1 in.....  | each | \$35.00 |
| 8024. | Binocular Telescope, covered with Black Russia Leather,<br>size of Object Glasses, 1¼ in..... | “    | 45.00   |
| 8025. | Binocular Telescope, covered with Black Russia Leather,<br>size of Object Glasses, 1½ in..... | “    | 52.00   |

ENGINEERS' AND SURVEYORS'  
**IMPROVED STEEL TAPES.**  
BELL METAL REEL.



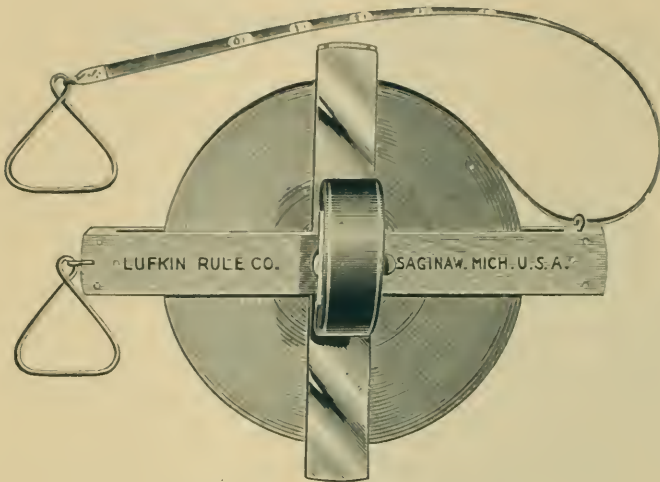
For Tapes 200 to 500 feet long, Friction Brake and Stops to hold Tape at any point, weighs  $3\frac{1}{2}$  to 4 pounds.....each \$12.00



One-fourth Inch Wide.

8031.	100 feet Tape, graduated to feet, each five feet by soldered bands marked with figures, intermediate feet by rivets, extra end foot to 10ths .....	each	\$4.00
8032.	100 Feet Tape, with soldered bands, figured every foot, extra end foot to 10ths .....	"	7.00
8035.	66 Feet, 100 links, bands every five links, with intermediate links marked by rivets .....	"	3.50
	Bell Metal Reels .....	"	2.00
	Wood Handle, Brass Center .....	"	1.50
	Brass Snap Handles.....	per pair	.30

**SURVEYOR'S CHAIN TAPES.**



Tape Complete, with Reel.



Reel only, when Folded.

This tape, with detachable rings, is the same as described on page 327, but the reel has steel cross-arms, which keep the tape in place when winding or unwinding. When tape is in use and removed from the reel, the metal cross-arms of the reel fold into the wooden frame, as shown above, so that even the large sizes can be conveniently carried in the pocket. The reel can be firmly held by running the hand through the strong leather loop fastened to the side of the same. *These reels are especially desirable for the larger tapes.*

**Tapes Complete, with Reel.**

8036—1.	100 feet	.....	each	\$ 7.50
2.	150 "	.....	"	9.00
3.	200 "	.....	"	10.50
4.	300 "	.....	"	14.00
5.	500 "	.....	"	21.50

**Tapes only, with Rings.**

8037—1.	100 feet	.....	each	\$ 4.00
2.	150 "	.....	"	5.50
3.	200 "	.....	"	7.00
4.	300 "	.....	"	10.50
5.	500 "	.....	"	18.00
	Reel only	.....	"	3.50
	Rings only	.....	per pair	.50

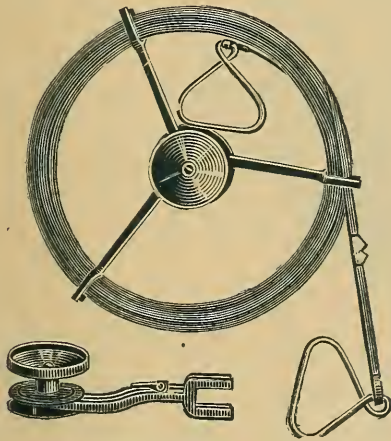
All chain tapes graduated one side only in feet every foot, or links and poles every link, as ordered. Tapes graduated in feet have end feet graduated to tenths or twelfths, and *unless otherwise specified, will be sent end feet in tenths.* Tapes graduated in links have end links in tenths of links.

Packed one in a box.

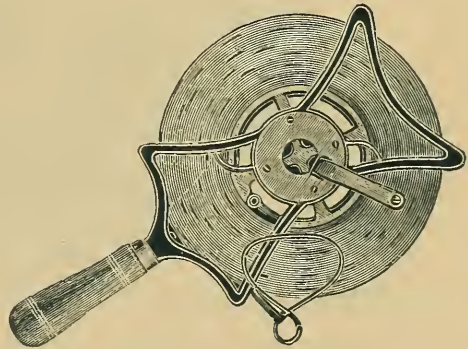
As a convenient, strong, durable chain tape for heavy out-door work, ours excels all others, and we guarantee it in every way.

**NARROW STEEL TAPES.**

One-tenth inch wide, graduations being on Brass or German Silver bands soldered to the tape, and figured.



Folding Brass Reel, price \$1.50



Bell Metal Reel, price, \$2.00

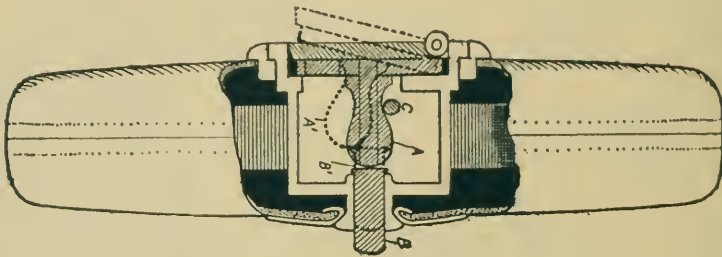
8042.	200 feet, marked every 5 feet, end 5 feet to feet	.....each	\$ 7.00
300	" " " " " "	..... "	10.00
400	" " " " " "	..... "	13.00
500	" " " " " "	..... "	16.00

Extra end foot at each end marked to 10ths on all of the above.

Special Tapes at Reasonable Prices.

**“RELIABLE”****STEEL MEASURING TAPES.**

The main feature of our “Reliable” is the new winding attachment by which all the objections against every other flush handle, which depends upon a strong finger nail as an agent for opening, are overcome. This arrangement presents a perfectly flush appearance when closed, and the handle is opened by simply pressing a pin on opposite side of case, as shown below.



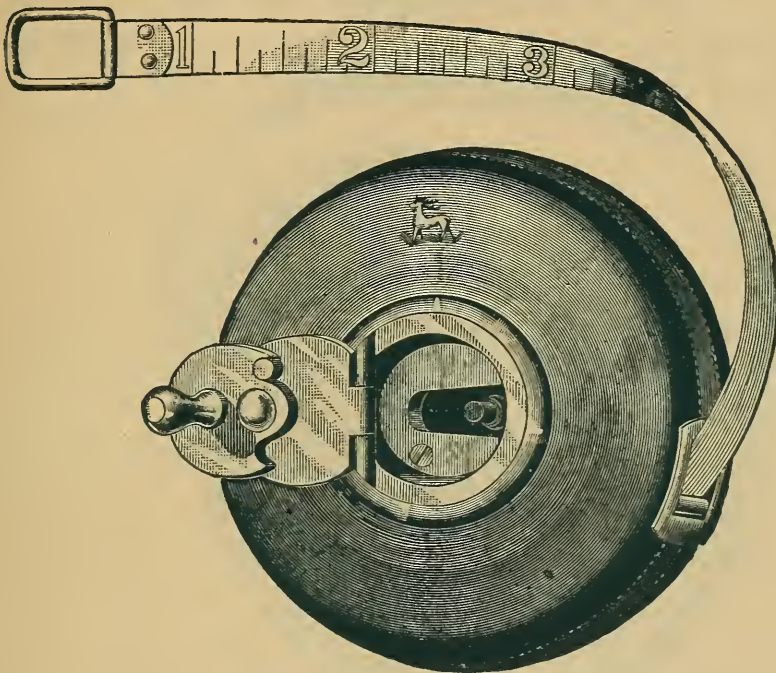
This pin pushes against the winding knob or handle when closed, and thus lifts cover or handle. As shown above, the small spring C holds the handle in place. Another great advantage is the handle, which, as shown on opposite page, swings out, giving just double length for leverage, and making the winding operation exceptionally easy and convenient. This construction also allows the use of a longer and larger knob than usual, and thus permits a better and easier grip for the fingers.

Extraordinary care is exercised in preparing and graduating our tapes, and none but the finest grade of steel is used.

The standard of measurement for our full line of Tapes is furnished by the office of Weights and Measures of the United States Coast and Geodetic Survey at Washington, and the measurements on all steel tapes are guaranteed as near perfect accuracy as is possible to make them. Numerous tests (copies of which we will furnish upon application), made during the last few years show that in comparison with tapes of other manufacture, our goods are the most accurate and reliable, and are recognized as such by the most prominent engineers and surveyors in different parts of the country.

All tapes furnished with the Metric or Vara measurements when desired.

**“RELIABLE”  
STEEL MEASURING TAPES.**



No. 8050.

With double folding flush handle, opened by pressing small pin or button on opposite side. Hard leather cases. Nickel-plated trimmings. Measurements guaranteed perfectly accurate.

**With 3/8-inch Tapes.**

8044.	25 Feet, division 10ths and links, or 12ths and links.....	each	\$ 4.50
8045.	33 “ “ “ “ “ “ “ .....	“	5.20
8047.	50 “ “ “ “ “ “ “ .....	“	7.20
8048.	66 “ “ “ “ “ “ “ .....	“	9.20
8049.	75 “ “ “ “ “ “ “ .....	“	10.40
8050.	100 “ “ “ “ “ “ “ .....	“	12.80

**With 1/2-inch Tapes.**

8052.	25 Feet, division 10ths and links, or 12ths and links.....	each	\$ 5.10
8053.	33 “ “ “ “ “ “ “ .....	“	5.85
8055.	50 “ “ “ “ “ “ “ .....	“	8.10
8056.	66 “ “ “ “ “ “ “ .....	“	10.35
8057.	75 “ “ “ “ “ “ “ .....	“	11.70
8058.	100 “ “ “ “ “ “ “ .....	“	14.40

The above tapes are marked on the back with links.

Tapes marked metric measure one side only, at same price as corresponding lengths in feet.

Tapes marked feet one side, metric measure on the other, add 3 cents per foot to list price.

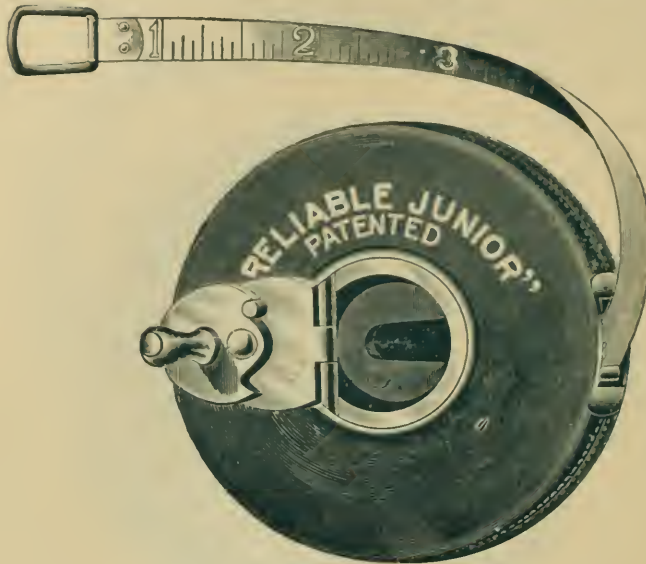
Tapes marked feet and 12ths one side, feet and 10ths on the other, add 3 cents per foot to list price.

Packed one in a box.

In ordering, state division, 10ths or 12ths.

**“RELIABLE JUNIOR”**

**STEEL MEASURING TAPES.**



No. 8060.

With double folding flush handle, opened by pressing small pin or button on opposite side. Hard leather cases. Nickel-plated trimmings. Measurements guaranteed perfectly accurate.

**With 1/4-inch Tapes.**

8059.	25 Feet, division 10ths or 12ths. ....	each	\$3.75
8060.	50 “ “ “ “ .....	“	5.00

Tapes marked metric measure, one side only, at same price.

Tapes marked feet one side, metric measure on the other, add 2½ cents per foot to list price.

Tapes marked feet and 12ths one side, feet and 10ths on the other, at 2½ cents per foot to list price.

**A 25-foot Steel Measuring Tape Weighs Only Three Ounces, 50-foot Weighs Five Ounces Complete, and can be Conveniently Carried in Vest Pocket.**

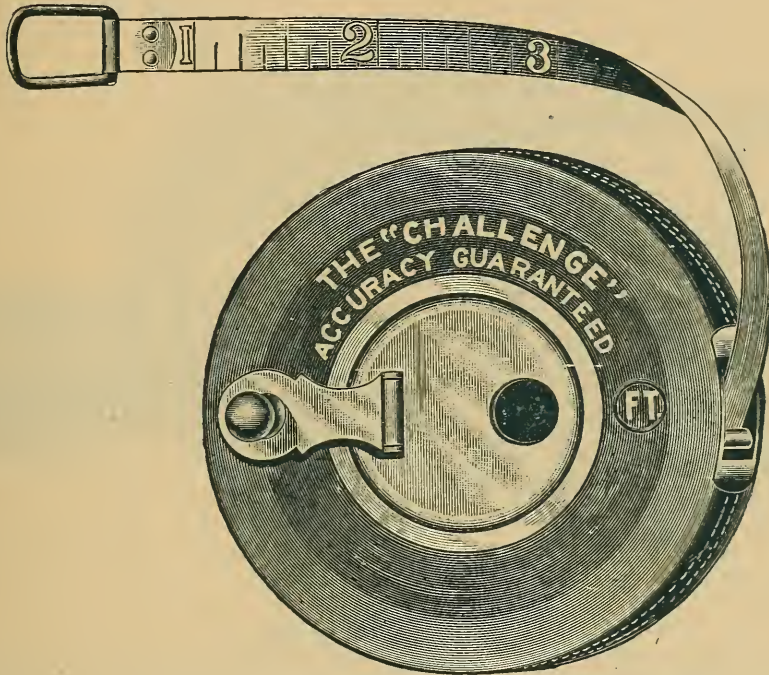
This steel tape is an exact counterpart of our well-known “Reliable,” and not much over one-half its size and weight. It is a beautiful piece of workmanship, and, although small and light, is constructed in such durable manner, and the steel also of sufficient weight, that with proper care it will wear as long as an ordinary steel tape. It is, of course, not designed to replace or do the heavy work of a larger and heavier tape, but for such as have frequent use for a steel tape, and wish to have one constantly with them, this is an article of great value and convenience. Extreme accuracy and the finest construction are guaranteed.

In ordering, state division, 10ths or 12ths.



**“CHALLENGE”**

**STEEL MEASURING TAPES.**



No. 8065.

Hard leather cases, nickel-plated trimmings, flush handle,  $\frac{3}{8}$ -inch tape, marked one side only, in 10ths or 12ths,

8062.	25 Feet,	divided in 10ths or 12ths	.....	each	\$3.25
8063.	50	“ “ “ “	.....	“	4.00
8064.	75	“ “ “ “	.....	“	5.50
8065.	100	“ “ “ “	.....	“	7.00

Marked inches one side, metric measure other side, add  $2\frac{1}{2}$  cents per foot to list price.

**Marked in Meters and Centimeters.**

One side only. Millimeters the first 10 Centimeters.

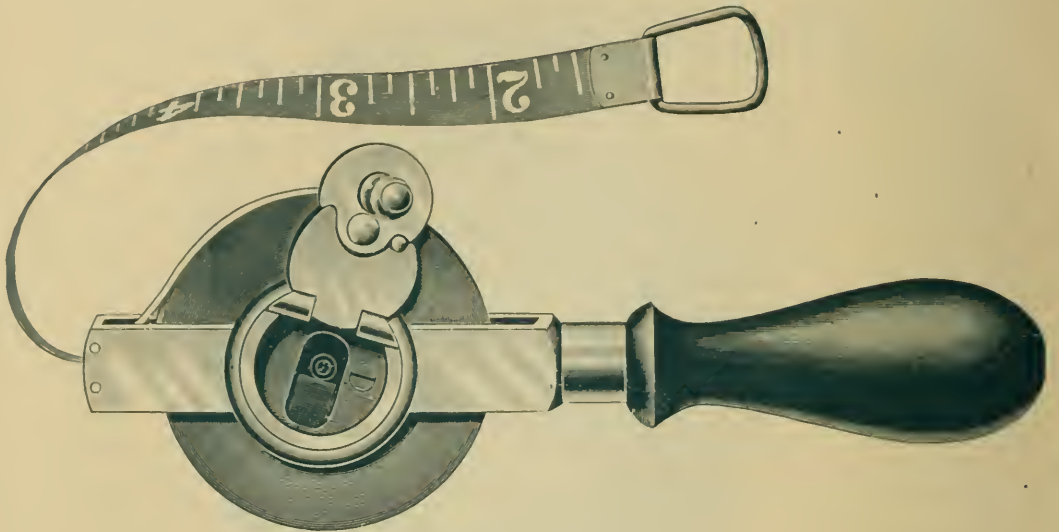
No.....	8066	8067	8068	8069	8070
Length, meters.....	10	15	20	25	30
Each.....	\$3.50	4.00	5.00	6.00	7.00

The “Challenge” Steel Tape in leather case is a companion to our “Rival,” the only difference being in the cases. Although low in price it is strictly first class, durable, neat, and guaranteed perfectly accurate.

In ordering, state division, 10ths or 12ths.

**"RELIABLE"**

**FRAME STEEL TAPES.**



No. 8075.

**With 1/2-inch Steel Tapes.**

Nickel-plated brass frames and trimmings and our patent double folding flush handle, opened by pressing small pin or button on opposite side.

8072.	50 Feet, divided 10ths and Links, or 12ths and Links . . . .	each	\$ 7.50
8073.	66 " " " " " " " " . . . .	"	9.50
8074.	75 " " " " " " " " . . . .	"	11.50
8075.	100 " " " " " " " " . . . .	"	13.50

The above tapes are marked on the back with links.

Tapes marked metric measure one side only, same price as corresponding lengths in feet.

Tapes marked feet one side, metric measure on the other, add 3 cents per foot to list price.

Tapes marked feet and 12ths one side, feet and 10ths on the other, add 3 cents per foot to list price.

Packed one in a box.

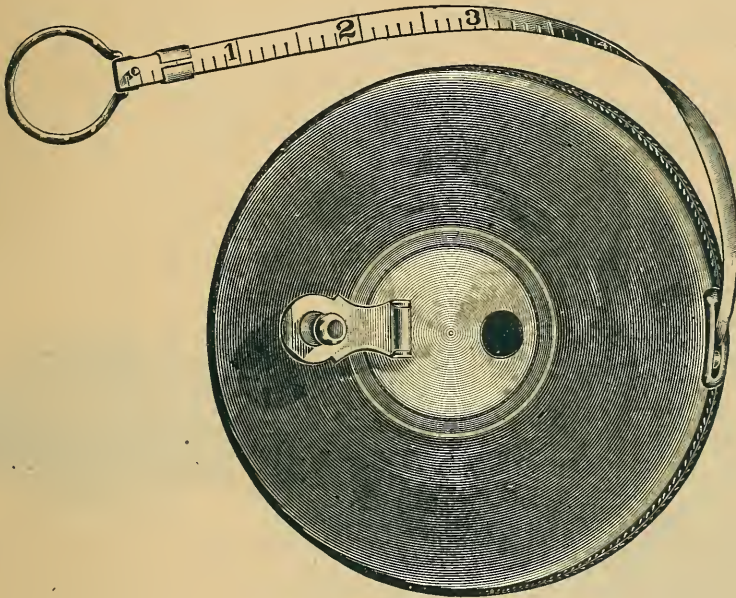
**Tapes Only Without Cases.**

1/2 inch wide.

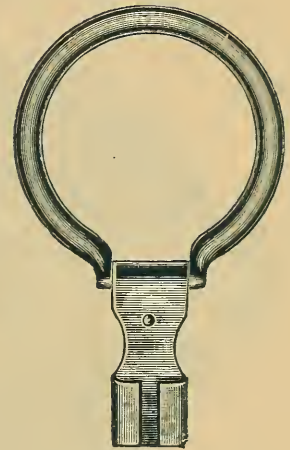
Length, feet . . . . .	50	66	75	100
Each . . . . .	\$6.10	8.10	9.00	11.50

In ordering, state division, 10ths or 12ths.

**PAINE'S PATTERN STEEL TAPES.**



No. 8079.



Full Size of Ring.

With  $\frac{1}{4}$ -inch tapes; hard-leather metal-lined cases, nickel-plated trimmings, two detachable rings. The tape can be readily detached from the case, and we furnish an extra ring for the other end. The steel is heavier and stronger than used in the regular steel tapes, and the cases are thinner. Marked on one side in 10ths or 12ths.

8076.	50 Feet, divided in 10ths or 12ths . . . . .	each	\$ 6.00
8077.	66 " " " " . . . . .	"	8.00
8078.	75 " " " " . . . . .	"	9.50
8079.	100 " " " " . . . . .	"	12.00

Tapes marked metric measure one side only, same price as corresponding lengths in feet.

Tapes marked feet on one side, metric measure on the other, add  $2\frac{1}{2}$  cents per foot to list price.

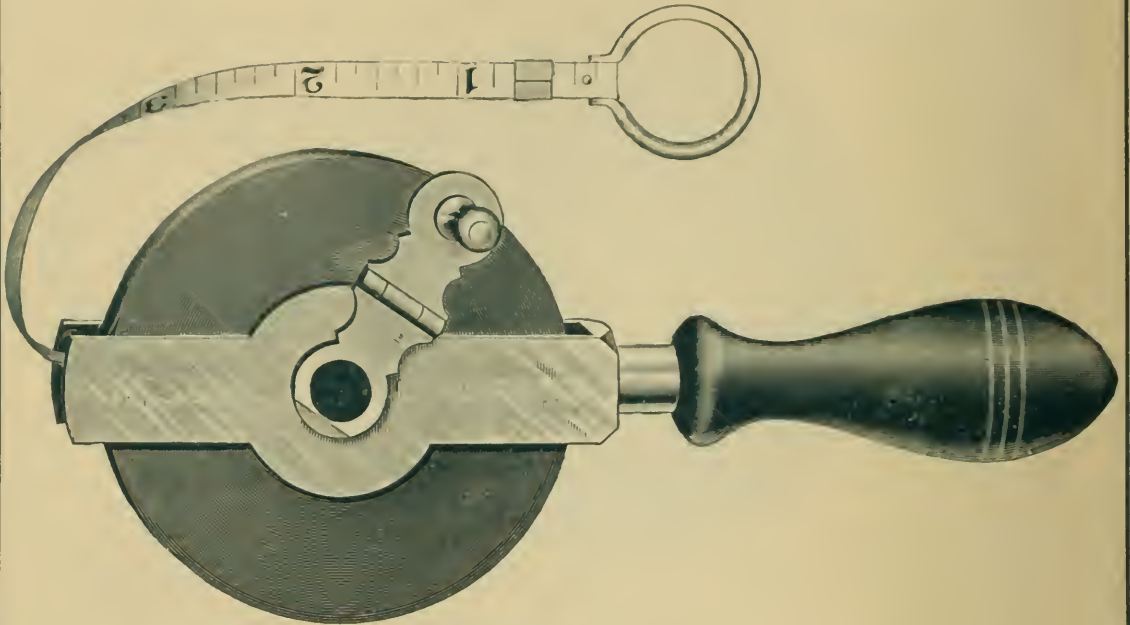
Packed one in a box.

**Tapes Only, With Two Rings, Without Cases.**

Length, feet. . . . .	50	66	75	100
Each. . . . .	\$4.00	5.00	6.00	7.50
Extra detachable rings or handles, small, 1 in. round . . . . .	per pair			\$ .50
" " " " large, 3 " oval . . . . .				1.00

In ordering, state division, 10ths or 12ths.

PAINÉ'S PATTERN FRAME STEEL TAPES.



No. 8083.

With  $\frac{1}{4}$ -inch tapes; same as we use in the regular Paine pattern illustrated on pag 319. The tape can be readily detached from the frame and we furnish an extra ring for the other end. The frames are nicely nickel plated, have rosewood handle and can be conveniently carried in the pocket while the tape is in use. Marked on one side in 10ths or 12ths

8080.	50	Feet,	divided	in	10ths	or	12ths	.....	each	\$5.25
8081.	66	"	"	"	"	"	"	.....	"	6.25
8082.	75	"	"	"	"	"	"	.....	"	7.50
8083.	100	"	"	"	"	"	"	.....	"	9.00

Tapes marked metric measure one side only, same price as corresponding lengths in feet.

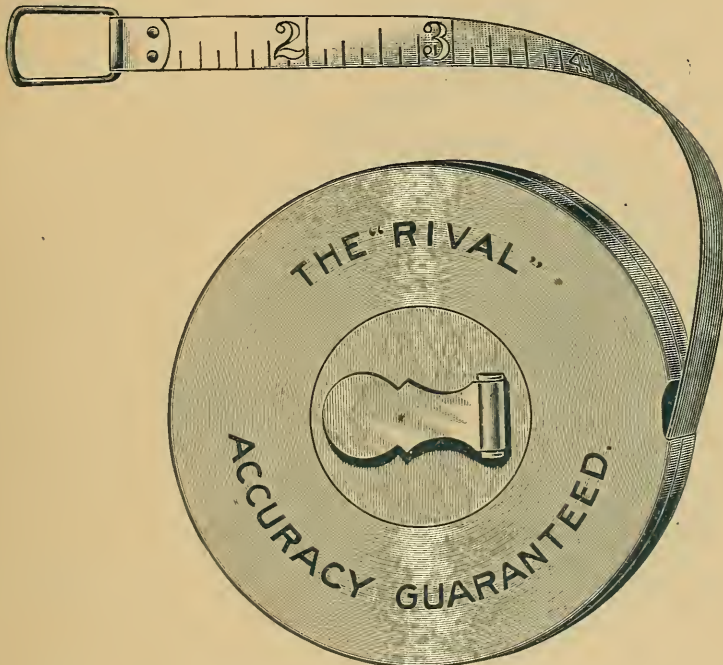
Tapes marked feet one side, metric measure on the other, add  $2\frac{1}{2}$  cents per foot to list price.

Packed one in a box.

In ordering, state division, 10ths or 12ths.

“ RIVAL ”

STEEL MEASURING TAPES.



No. 8087.

Nickel-plated steel cases, flush handle, 3/8-in. tapes, marked one side only, in 10ths or 12ths.

8084.	25 Feet, divided in 10ths or 12ths	.....	each	\$2.75
8085.	50 " " " "	.....	"	3.40
8086.	75 " " " "	.....	"	4.50
8087.	100 " " " "	.....	"	5.75

Marked inches one side, metric measure other side, add 2½ cents per foot to list price.

Marked in Meters and Centimeters.

One side only. Millimeters the first 10 Centimeters.

No.....	8088	8089	8090	8091	8092
Length, meters .....	10	15	20	25	30
Each .....	\$3.00	3.40	4.25	5.10	5.75

The “Rival” is the most popular steel tape in the market, as it meets a demand from a large class of users who appreciate the value of a steel tape, but do not wish to invest in the higher-priced article. While the price is very low, the tape is in every way first class. The measurements are guaranteed accurate. The case is of hardened steel, nicely nickel plated, is compact, very durable and will not bend or break. The winding drum is large, has a long crank, winds easily, and the handle folds nearly flush with the case. We can safely recommend this tape to the purchaser as an article which is first class, durable and perfectly accurate.

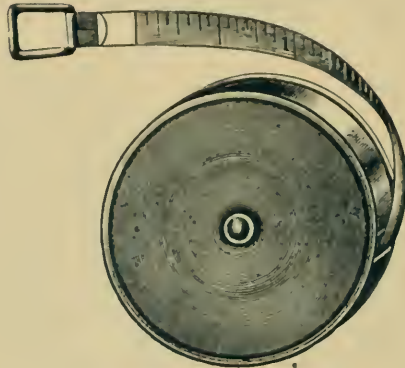
Packed one-half dozen in a box.

In ordering, state division, 10ths or 12ths.

**POCKET STEEL TAPES.**

German Silver Cases, Spring Wind, with Stop.

Illustration full size.



No. 8094.

**Marked one side only.**

8094.	36 in.,	$\frac{1}{4}$ in.	Tape, marked Inches and 16ths	.....	each	\$ .75
8096.	60 "	$\frac{1}{4}$ "	" " " " " "	.....	"	.95
8097.	72 "	$\frac{1}{4}$ "	" " " " " "	.....	"	1.10
8099.	96 "	$\frac{1}{4}$ "	" " " " " "	.....	"	1.50
9000.	10 feet,	$\frac{5}{16}$ "	" " Feet, Inches and 8ths	.....	"	2.10
9001.	12 "	$\frac{5}{16}$ "	" " " " " "	.....	"	2.40

**Marked Both Sides.**

9002.	36 in., 1 meter,	$\frac{1}{4}$ -in.	Tape, Inches and 16ths one side, Milli-	.....	each	\$ .90
			mmeters other side.			
9003.	60 in., 1½ meter,	$\frac{1}{4}$ -in.	Tape, Inches and 16ths one side, Milli-	.....	"	1.15
			mmeters other side			
9004.	72 in., 2 meter,	$\frac{1}{4}$ -in.	Tape, Inches and 16ths one side, Milli-	.....	"	1.30
			mmeters other side			
9005.	10 feet, 3 meter,	$\frac{5}{16}$ -in.	Tape, Feet, Inches and 8ths one side,	.....	"	2.40
			Millimeters other side.			
9006.	12 feet, 4 meter,	$\frac{5}{16}$ -in.	Tape, Feet, Inches and 8ths one side,	.....	"	2.75
			Millimeters other side.			

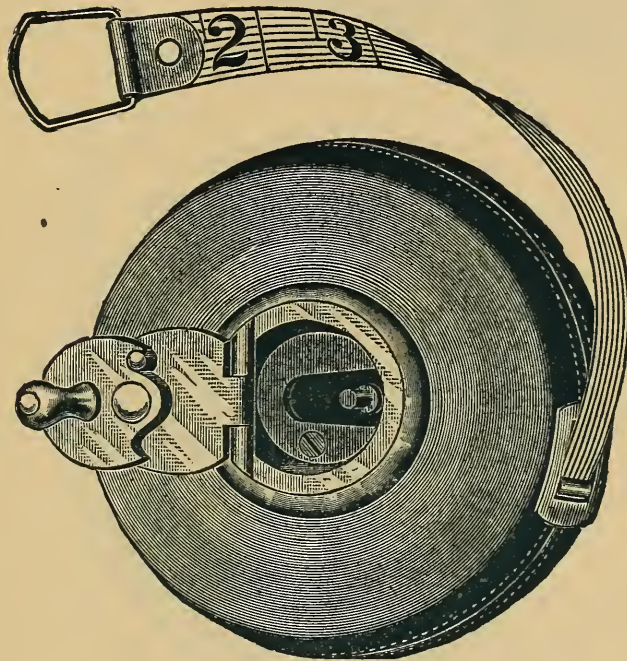
**SURVEYORS' POCKET STEEL TAPES.**

9007.	36 in., $\frac{1}{4}$ -in.	Tape, Inches and 16ths one side, Feet, 10ths and 100ths of feet other side.	.....	each	\$ .90
9008.	72 in., $\frac{1}{4}$ -in.	Tape, Inches and 16ths one side, Feet, 10ths and 100ths of feet other side.	.....	"	1.30
9010.	10 feet, $\frac{5}{16}$ -in.	Tape, Feet, Inches and 8ths one side, Feet, 10ths and 100ths of feet other side.	.....	"	2.40
9011.	12 feet, $\frac{5}{16}$ -in.	Tape, Feet, Inches and 8ths one side, Feet, 10ths and 100ths of feet other side.	.....	"	2.75

All pocket tapes packed one-half dozen in a box.

**METALLIC MEASURING TAPES.**

**FLUSH HANDLE.**



No. 9018.

With our patent double folding flush handle, same as we use on our "Reliable" Steel Tapes opened by pressing pin on opposite side. Tape  $\frac{3}{8}$  inch wide, made of best woven linen, with metallic warp. Hard leather cases.

9012.	25 Feet, divided 10ths and Links or 12ths and Links . . . . .	each	\$2.25
9013.	33 " " " " " " " . . . . .	"	2.50
9015.	50 " " " " " " " . . . . .	"	3.00
9016.	66 " " " " " " " . . . . .	"	3.30
9017.	75 " " " " " " " . . . . .	"	3.60
9018.	100 " " " " " " " . . . . .	"	4.50

The above tapes are marked on back with links.

Tapes marked in meters and centimeters on back instead of links, price same as tapes marked both sides.

Tapes marked in feet on back instead of links, price same as tapes marked both sides.

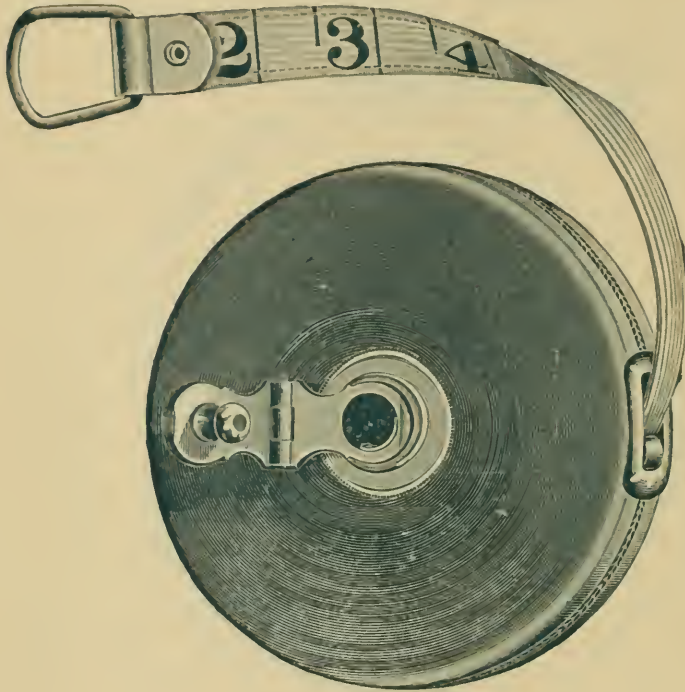
**Marked in Meters and Centimeters.**

One side only.

No. . . . .	9013 M	9015 M	9016 M	9017 M	9018 M
Length, meters . . . . .	10	15	20	25	30
Each . . . . .	\$2.40	2.80	3.20	3.70	4.20

In ordering, state division, 10ths or 12ths.

**METALLIC MEASURING TAPES.**  
**FOLDING HANDLE.**



No. 9025.

Tape  $\frac{5}{8}$  in. wide, made of best woven linen with metallic warp. Hard leather cases, brass folding handles and brass trimmings.

9019.	25	Feet,	divided	10ths	and	Links	or	12ths	and	Links.	....	each	\$1.90
9020.	33	"	"	"	"	"	"	"	"	"	.....	"	2.15
9022.	50	"	"	"	"	"	"	"	"	"	.....	"	2.65
9023.	66	"	"	"	"	"	"	"	"	"	.....	"	3.00
9024.	75	"	"	"	"	"	"	"	"	"	.....	"	3.30
9025.	100	"	"	"	"	"	"	"	"	"	.....	"	4.20

The above tapes are marked on back with links.

Tapes marked in meters and centimeters on back instead of links, price same as tapes marked both sides.

Tapes marked in feet on back instead of links, price same as tapes marked both sides.

**Marked in Meters and Centimeters.**

One side only.

No.....	9020 M	9021 M	9022 M	9024 M	9025 M
Length, meters .....	10	15	20	25	30
Each.....	\$2.25	2.75	3.00	3.50	4.00

**Metallic Tapes only, Without Cases.**

Length, feet .....	25	33	40	50	66	75	100
Marked one side, each.....	\$ .90	1.10	1.30	1.50	1.70	1.90	2.75
Marked both sides, each.....	1.00	1.20	1.40	1.60	1.90	2.10	3.00
Length, meters .....		10	15	20	25	30	
Marked one side, each.....		\$1.10	1.50	1.70	2.20	2.70	

In ordering, state division, 10ths or 12ths.



**"STERLING"**  
**LINEN MEASURING TAPES.**



No. 9029.

With  $\frac{1}{2}$ -inch pure linen tape, reinforced with leather the first four inches and heavily coated. Nickel-plated trimmings, flush handle, hard leather cases. Marked one side only in 10ths or 12ths.

9026.	25 Feet, divided 10ths or 12ths.....	each	\$1.50
9027.	50 " " " " .....	"	2.00
9028.	75 " " " " .....	"	2.50
9029.	100 " " " " .....	"	3.00

**Marked in Meters and Centimeters.**

One side only.

No.....	9026 M	9027 M	9028 M	9029 M
Length, meters.....	10	20	25	30
Each.....	\$1.75	2.25	2.50	3.00

This tape meets the demand for a first class linen measuring tape that can be sold at a low price.

The tape proper is tightly woven from the very best linen thread, reinforced with leather the first four inches, and is as carefully coated, finished and marked as our metallic tapes. The cases are of hard leather, same as those we use on our metallic tapes, the trimmings are nickel plated and the winding handle, when closed, is flush with the case. Besides being strictly first class in quality and workmanship, our Sterling Tape makes an exceptionally neat appearance, and the trade will find it a ready seller.

In ordering, State division, 10ths or 12ths.

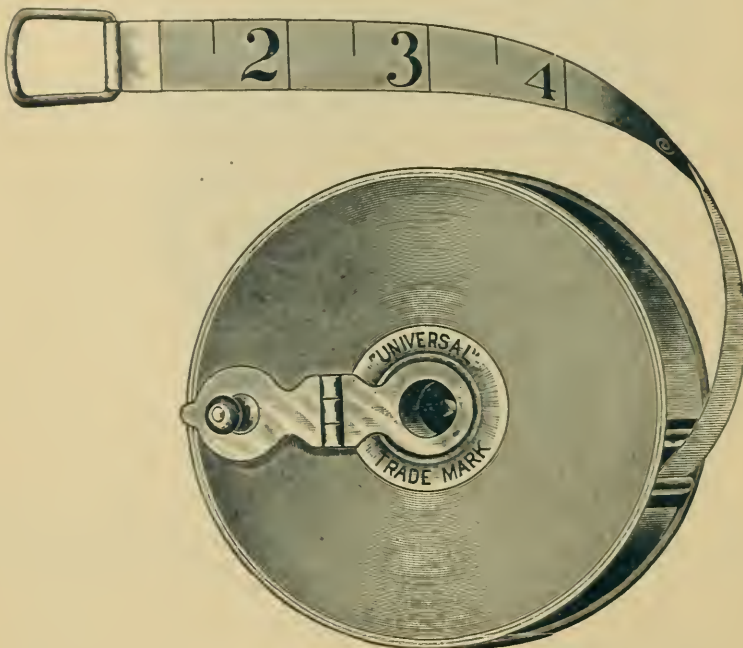
**“ UNIVERSAL ”**

(TRADE MARK.)

**MEASURING TAPES.**

We have added to our production a complete line of low-priced and popular measuring tapes under the above brand, as illustrated on this page, and we assure the trade that under the “ Universal ” brand we are making and offering a line of goods superior to any others of the same class in the market.

**ASS-SKIN MEASURING TAPES.**



No. 9036.

With ½ inch cotton tape.

Brass-bound cases, brass folding handles and trimmings.

**Marked one side only, in 10ths or 12ths.**

No.....	9030	9031	9032	9033	9034	9035	9036
Length, feet.....	25	30	40	50	66	75	100
Each.....	\$ .35	.40	.45	.50	.55	.65	.80

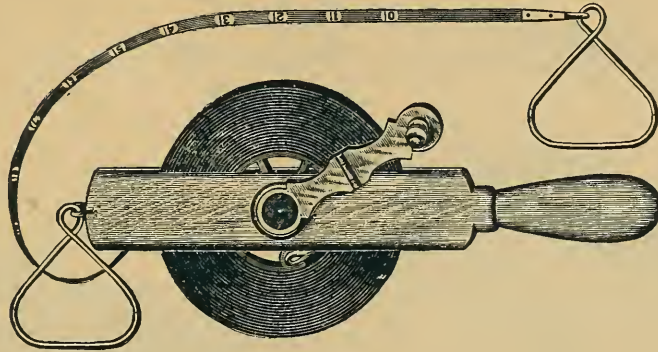
**Marked in Meters and Centimeters.**

One side only.

No.....	9030M	9031M	9032M	9033M	9034M
Length, meters.....	10	15	20	25	30
Each.....	\$ .40	.45	.55	.70	.80

In ordering, state division, 10ths or 12ths.

**SURVEYORS' CHAIN TAPES.**



With heavy  $\frac{1}{4}$ -in Steel tapes. Nicely finished hardwood reel with large metal folding handle and two large detachable rings. Trimmings nicely nickel plated.

Graduated every foot, the end feet in tenths or twelfths. *Unless otherwise specified, these tapes will be furnished with end feet graduated to tenths.*

No. 9040.	100 ft.,	Complete with Reel	.....	each	\$ 6.00
No. 9042.	150 "	" " " "	.....	"	7.50
No. 9044.	200 "	" " " "	.....	"	9.00
No. 9046.	300 "	" " " "	.....	"	12.50
No. 9048.	500 "	" " " "	.....	"	20.00
No. 9050.	100 "	Tape only, with two Rings	.....	"	4.00
No. 9052.	150 "	" " " " " "	.....	"	5.50
No. 9054.	200 "	" " " " " "	.....	"	7.00
No. 9056.	300 "	" " " " " "	.....	"	10.50
No. 9058.	500 "	" " " " " "	.....	"	18.00
Reel only	.....	.....	.....	"	2.00
Rings only	.....	.....	.....	per pair	.50

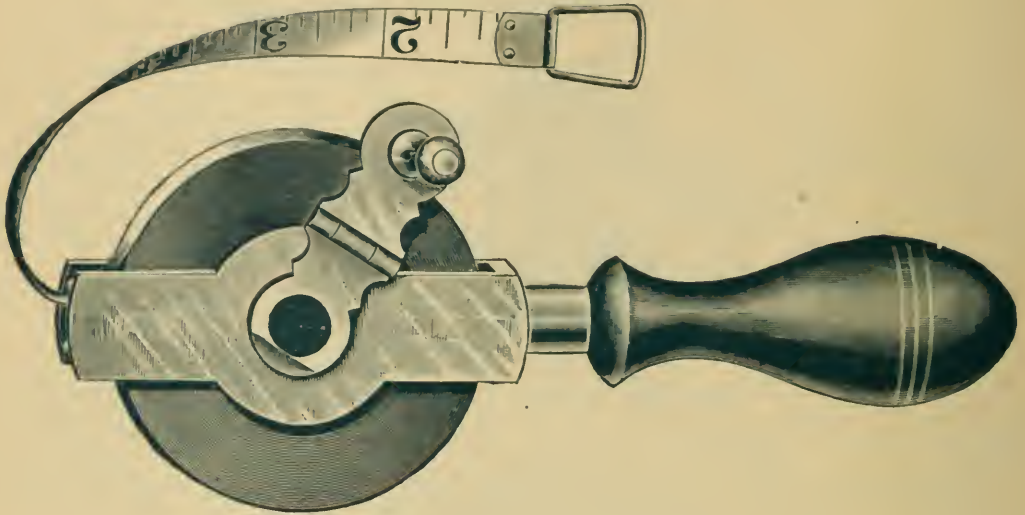
**THE BEST CHAIN TAPE OR BAND CHAIN MADE.**

This article is something new in the way of chain tapes or band chains and is far superior to anything ever put onto the market in this line. The graduations are not made with rivets, which weakens the tape, or with soft metal, which makes it clumsy and wears off, but wherever graduated the steel has a bright, raised surface with the figures etched in. The steel being tempered and of the finest quality, *the graduations and figures will never be effaced, but will always show up clear and distinct.* The frame and winding apparatus is strong, durable and compact, and can be conveniently carried in the pocket when the tape is not in use. The tape can easily be detached from the frame and is provided with two large and strong detachable handles or rings. When the tape is not in use these handles are fastened to the frame where they will not get lost and at the same time they serve as a convenient handle for carrying the complete tape.

*As a convenient, strong, durable chain tape for heavy out-door work this excels all others, and we guarantee it in every way.*

Packed one in a box.

**“GERMANIA” FRAME STEEL TAPES.**



**With Regular 3/8 inch Steel Tapes.**

Folding Winding Handle. Frames and Trimmings of brass, nicely nickel plated, with rosewood handles, and made very strong and serviceable.

Tapes marked one side only in tenths or twelfths.

9060.	Length 50 ft	.....	each	\$4.50
9062.	“ 66 “	.....	“	5.25
9064.	“ 75 “	.....	“	6.25
9066.	“ 100 “	.....	“	7.75

**“GERMANIA” FRAME STEEL TAPES.**

(Same style as above).

**With Regular 1/2 inch Steel Tapes.**

9070.	Length 50 ft.	.....	each	\$5.25
9072.	“ 66 “	.....	“	6.25
9074.	“ 75 “	.....	“	7.50
9076.	“ 100 “	.....	“	9.00

Tapes marked metric measure one side only, same price as corresponding lengths in feet.

Tapes marked feet one side, metric measure on the other, add 2½ cents per foot to list price.

Packed one in a box.

The above are first class, high grade, neat and durable frame tapes at a low price Fully guaranteed.

## SCIENTIFIC BOOKS.

The following prices apply to the latest editions now on the market and will change with publishers' rates.

- ANDRE, GEO. C.—Plan and Map Drawing. Including instructions for the preparation of Engineering, Architectural and Mechanical Drawings, 86 illustrations, 33 plain and colored plates, 4to, cloth, N. Y.....\$ 3 75
- BAKER, A. L.—Elliptic Functions. 8vo, cloth..... 1 50
- BAKER, I. O.—Engineer's Surveying Instruments. Second edition, revised and greatly enlarged. Bound in cloth, 400 pages, 5 x 7½ inches, 86 illustrations, copious index. 12mo, cloth..... 3 00
- BAKER, I. O.—A Treatise on Masonry Construction. Complete in one volume of about 500 pages, with 125 illustrations and eight folding plates. Ninth edition, 8vo, cloth..... 5 00
- BARLOW, P.—Barlow's Tables of squares, cubes, square roots, reciprocals of all numbers up to 10,000, 12mo, cloth, N. Y. 1897..... 2 50
- BIRKMIRE, W. H.—The Planning and Construction of American Theatres. Fully illustrated with half-tones of the most recent theatres. 8vo. cloth..... 3 00
- BIRKMIRE, W. H.—Architectural Iron and Steel and its Application in the Construction of Buildings. Fully illustrated from original designs. Third edition, 8vo. cloth..... 3 50
- BIRKMIRE, W. H.—The Planning and Construction of High Office Buildings. Fully illustrated with Engravings of the great Office Buildings of the Country, all the different details fully described and illustrated, covering the planning and construction of these large structures. 8vo, cloth..... 3 50
- BIRKMIRE, W. H.—Skeleton Construction in Buildings. Fully illustrated with Engravings from Practical Examples of High Buildings. Second edition, 8vo, cloth..... 3 00
- BIRKMIRE, W. H.—Compound Riveted Girders as Applied in Buildings. 8vo, cloth..... 2 00
- BLAINE, R. G.—Slide Rule. Quick and easy methods of calculating. A simple explanation of the theory and use of the slide rule, Logarithms, etc., with numerous examples. 144 pages, 6 illustrations and folding plate. 16mo, cloth..... 1 00

SCIENTIFIC BOOKS—Continued.

BOILEAU, J. T.—Complete set of <b>Traverse Tables</b> , showing the differences of latitudes and the departures to every minute of the quadrant, and to five places of decimals, etc., etc. Svo, cloth, 8th edition, revised, London, 1900.....	\$5 00
BOWIE, AUG. J., JUN., M. E.— <b>A Practical Treatise on Hydraulic Mining in California</b> . With description of the Use and Construction of Ditches, Flumes, Wrought-iron Pipes and Dams; Flow of Water on Heavy Grades and its Applicability, under High Pressure, to Mining. 5th edition, small quarto, cloth. Illustrated.....	5 00
BOWSER, PROF. E. A.— <b>An Elementary Treatise on Analytic Geometry</b> . Embracing Plane Geometry, and an Introduction to Geometry of three dimensions. 12mo, cloth, 19th edition.....	1 75
BOWSER, PROF. E. A.— <b>An Elementary Treatise on Analytic Mechanics</b> . With numerous examples. 12mo, cloth, 12th edition.....	3 00
BOWSER, PROF. E. A.— <b>An Elementary Treatise on Hydro-Mechanics</b> . With numerous examples. 12mo, cloth, 5th edition.....	2 50
BOWSER, PROF. E. A.— <b>A Treatise on Roofs and Bridges</b> . With numerous exercises. Especially adapted for school use. 12mo, cloth, illustrated .....	2 25
BOX, THOS.— <b>Strength of Materials</b> . Including their Elasticity and Resistance to Impact. With plates, 8vo, cloth, 3rd edition, N. Y.....	7 25
BOX, THOS.— <b>A Practical Treatise on Heat</b> as applied in useful arts. For the use of Engineers, Architects, etc., 14 plates, 12mo, cloth, 8th edition. N. Y., 1898.....	5 00
BOX, THOS.— <b>Practical Hydraulics</b> . A series of rules and tables for the use of Engineers. 11th edition, 80 pages, with tables and 49 illustrations, 12mo, cloth.....	2 00
BURT, W. A.— <b>Key to the Solar Compass</b> , and Surveyors' Companion, comprising all the rules necessary for use in the field. 6th edition. Pocket book form, tuck. N. Y., 1894.....	2 50
BUTTS.— <b>The Civil Engineer's Field Book</b> . Designed for use of the Locating Engineer. By Edward Butts, C. E., 16mo, morocco...	2 50
BYRNE, A. T.— <b>Highway Construction</b> . Designed as a Text-Book and Work of Reference for all who may be engaged in the Location, Construction or Maintenance of Roads, Streets and Pavements. Third edition, revised and enlarged. Svo, cloth.....	5 00
BYRNE, A. T.— <b>Inspection of the Materials and Workmanship Employed in Construction</b> . A Reference Book for the Use of Inspectors, Superintendents, and Others Engaged in the Construction of Public and Private Works, etc. 16mo, cloth.....	3 00

**SCIENTIFIC BOOKS—Continued.**

Chamber's Mathematical Tables, consisting of logarithms of Numbers 1 to 108,000, Trigonometrical, Nautical and other tables. New edition. 8vo, cloth.....	\$1 75
CHURCH, L. P.—Mechanics of Engineering. For the use of Technical Schools. 8vo, cloth.....	6 00
CHURCH, L. P.—Notes and Examples in Mechanics. With an Appendix on the Graphical Statics of Mechanism. 135 pages, with blank pages for problems. 8vo, cloth.....	2 00
CLARK, D. K.—The Mechanical Engineer's Pocket Book of Tables, Formula, Rules and Data. A Handy Book of Reference for Daily Use in Engineering Practice. 16mo, morocco, 2nd edition	3 00
CLEEMANN, THOS. M.—The Railroad Engineer's Practice. Being a Short Complete Description of the duties of the Young Engineer in the Preliminary and Location Surveys and in Construction. 4th edition, revised and enlarged. Illustrations, 12mo, cloth...	1 50
CLEVENGER, S. V.—A Treatise on the Method of Government Surveying, as prescribed by the U. S. Congress and Commissioner of the General Land Office. With complete Mathematical, Astronomical and Practical Instructions, for the Use of the U. S. Surveyors in the Field, and Students who contemplate engaging in Public Land Surveying. 4th edition, 12mo, mor. gilt. N. Y., 1893 .....	2 50
COFFIN, PROF. J. H. C.—Navigation and Nautical Astronomy. Prepared for the use of the U. S. Naval Academy. New edition. Revised by Commander Charles Belknap. 52 woodcut illustrations. 12mo, cloth.....	2 50
COLE, W. H.—M. Inst. C. E. Notes on Permanent Way Material, with plates and tables. 12mo, cloth. N. Y.....	3 00
CRANDALL, C. L.—The Transition Curve. 12mo, morocco flap.....	1 50
CRANDALL, C. L.—Railway and Other Earthwork Tables. 8vo, cloth....	1 50
Cromwell's System of Easy Lettering.....	50
DIXON, D. B.—The Machinist's and Steam Engineer's Practical Calculator. 16mo, full morocco, pocket form.....	1 25
DUNCAN, A.—Practical Surveyor's Guide. 12mo, cloth, illustrated. Philadelphia, 1899.....	1 50
FANNING, J. T.—A Practical Treatise on Hydraulic and Water Supply Engineering. Relating to the Hydrology, Hydrodynamics, and Practical Construction of Water-Works in North America. 180 illustrations, 8vo, cloth, Fourteenth edition, revised, enlarged, and new tables and illustrations added, 650 pages.....	5 00

**SCIENTIFIC BOOKS—Continued.**

FISH, J. C. L.— <b>Lettering of Working Drawings.</b> Thirteen plates with descriptive text, oblong, boards.....	\$1 00
FORNEY, M. N.— <b>Catechism of the Locomotive.</b> 12mo, cloth, 2nd edition revised and enlarged. N. Y., 1897.....	3 50
FOSTER, HORATIO A.— <b>Electrical Engineer's Pocket Book.</b> Pocket size, 1,000 pages, fully illustrated.....	5 00
FOX, WM., AND C. W. THOMAS, M. E.— <b>A Practical Course in Mechanical Drawing.</b> 12mo, cloth, with plates.....	1 25
FREITAG, J. K.— <b>Architectural Engineering.</b> With special reference to High Building Construction, including many examples of Chicago's Office Buildings, 8vo, cloth.....	3 50
FROST, GEO. H.— <b>Engineer's Field Book.</b> By C. S. Cross. To which are added seven chapters on Railroad Location and Construction. 4th edition, 12mo, cloth.....	1 00
GILLESPIE, W. M.— <b>Practical Treatise on Surveying.</b> 8vo, New York, 1897.	
Vol. 1, Land Surveying and Direct Leveling.....	2 50
Vol. 2, Higher Surveying.....	2 50
GILLESPIE, W. M.— <b>Manual of the Principles and Practice of Road-Making.</b> 10th edition, with large addenda. Edited by Cady Staley. 12mo, cloth.....	2 50
GILLMORE, GEN'L Q. A.— <b>Treatise on Limes, Hydraulic Cements and Mortars,</b> 8vo, cloth, revised, 10th edition. N. Y., 1890.....	4 00
GILLMORE, GEN'L Q. A.— <b>Treatise on the Construction of Roads, Streets and Pavements.</b> Seventy illustrations, 12mo, cloth, 9th edition. N. Y., 1896.....	2 00
GODWIN, H. C.— <b>Railroad Engineer's Field Book.</b> An Explorer's Guide, especially adapted to the use of Railroad Engineers on Location and Construction, and the Needs of the Employer in Making Exploratory Surveys. Second edition. Morocco flap.....	2 60
GREEN, C. E.— <b>Trusses and Arches.</b> Analyzed and Discussed by Graphical Methods. In three parts:	
<b>Part 1. Roof Trusses.</b> Diagrams for Steady Load, Snow and Wind. New revised edition, 1890. 8vo, cloth.....	1 25
<b>Part 2. Bridge Trusses.</b> Single, Continuous and Draw Spans: Single and Multiple System; Straight and Inclined Chords. New revised edition, 1895. 8vo, cloth.....	2 50
<b>Part 3. Arches in Wood, Iron and Stone.</b> For Roofs, Bridges and Wall Openings; Arched Ribs and Braced Arches; Stresses from Wind and Change of Temperature. Third edition. 8vo, cloth.....	2 50



## SCIENTIFIC BOOKS—Continued.

- GREENE, CHAS. E.—**Structural Mechanics.** Cloth, 6 x 9, 271 pp..... \$3 00
- GRISWOLD, W.—**Railroad Engineer's Pocket Companion.** 12mo, tucks.  
Philadelphia, 1883..... 1 50
- GURDEN, R. L.—**Traverse Tables,** computed to four places, Decimals for every minute of angle up to 100 of distance, for the use of Surveyors and Engineers. Small folio, half morocco, 4th edition. London, 1897..... 7 50
- HALL, JOHN L.—**Table of Squares.** Contains the true Square of every foot, inch and 1-16 of an inch, between 1-16 of an inch and 100 feet, flexible morocco, 3½ x 5¼ in. Gilt Edges..... 2 00
- HASWELL, C. H.—**Engineer's and Mechanic's Pocket Book.** 64th edition, revised and enlarged. Tucks. N. Y., 1899..... 4 00
- HAZEN, A.—**The Filtration of Public Water Supply.** 8vo, cloth..... 2 00
- HENCK, J. B.—**Field Book for Railroad Engineers.** Tucks. 2nd edition. N. Y., 1898..... 2 50
- HISCOX, G. D.—**Gas, Gasoline and Oil Vapor Engines,** contains also chapters on Horseless Vehicles, Electric Lighting, Marine Propulsion, etc. 2nd edition, revised, N. Y., 1898..... 2 50
- HOLLOWAY, THOS.—**Leveling and its General Application** (written solely for the beginner). 58 illustrations. 8vo, cloth. N. Y..... 2 00
- HORNBY, J.—**The Gas Engineer's Laboratory Handbook.** Illustrated, 12mo, cloth. N. Y..... 2 50
- HUTTON, F. R.—**The Mechanical Engineering of Power Plants.** 8vo, cloth ..... 5 00
- HUTTON, W. S.—**Practical Engineer's Hand-Book,** Comprising a treatise on Modern Engines and Boilers, Marine, Locomotive and Stationary. 4th edition. Carefully revised with additions. With upwards of 570 illustrations. 8vo, cloth..... 7 00
- HUTTON, W. S.—**The Works' Manager's Hand-Book of Modern Rules,** Tables and Data for Civil and Mechanical Engineers, Millwrights and Boiler-makers, etc., etc. With upwards of 150 illustrations. 5th edition. Carefully revised, with additions. 8vo, cloth..... 6 00
- IHLSENG, M. C.—**Manual of Mining.** For the use of Mining Engineers and Technical Schools. Treating of Preparatory and Exploratory Work, Methods of Mining, Hoisting Machinery, Pumping, Ventilation Shafts, Tunnels, Blasting, Timbering, etc., etc. Third edition, revised and enlarged. 8vo, cloth..... 4 00
- JACOBY, H. S.—**Text Book on Plain Lettering.** Cloth, 82 pp., illustrated with 48 full page plates..... 3 00

## SCIENTIFIC BOOKS—Continued.

- JOHNSON, J. B.—**The Materials of Construction.** 800 pages, 650 illustrations, 11 plates and complete index. Large octavo..... \$6 00
- JOHNSON, J. B.—**The Theory and Practice of Surveying.** Designed for the use of Surveyors and Engineers generally, but especially for the use of Students in Engineering. Illustrated by upwards of 150 engravings, with folding maps, tables, etc., etc. Sixteenth edition revised. 8vo, cloth..... 4 00
- JOHNSON, J. B.—**Engineering Contracts and Specifications.** 2nd edition, 1901 ..... 3 00
- JOHNSON, BRYAN AND TURNEAURE.—**Theory and Practice in the Designing of Modern Framed Structures.** Seventh edition, revised and enlarged. 4to, cloth..... 10 00
- JOYNSON, F. H.—**The Mechanic's and Student's Guide in the Designing and Construction of General Machine Gearing, as eccentrics, screws, toothed wheels, etc. and the drawing of rectilinear and curved surfaces, with practical rules and details.** 8vo, cloth. N. Y. .... 2 00
- KENT, WM.—**Mechanical Engineer's Pocket Book.** A reference book of Rules, Data, Tables and Formulas for the use of Engineers, Mechanics and Students. 5th edition, revised, 12mo, with flap. 5 00
- KIDDER, I. E.—**The Architects' and Builders' Pocket Book.** Over 1,030 pages, 500 engravings, revised and enlarged, with flap. .... 4 00
- LEANING, J.—**Quantity Surveying.** For the Use of Surveyors, Architects, Engineers and Builders. Illustrated, 2nd edition, 12mo, cloth, N. Y. .... 3 50
- MACKESY.—**Tables of Barometrical Heights to 20,000 feet.** With 3 diagrams, 32mo, cloth. N. Y. .... 1 25
- MERRIMAN, M.—**A Text Book on the Method of Least Squares.** Sixth edition, 8vo, cloth, with Diagrams and Tables..... 2 00
- MERRIMAN, M.—**The Mechanics of Materials and of Beams, Columns and Shafts.** 7th edition. 8vo, cloth, interleaved, many cuts. N. Y., 1897..... 4 00
- MERRIMAN, M.—**The Strength of Materials.** An elementary Text-book for Manual Training Schools. Duodecimo, cloth..... 1 00
- MERRIMAN, M.—**A Treatise on Hydraulics.** Designed as a Text-Book for Technical Schools and for the use of Engineers. 8vo, cloth. Fifth edition, revised and enlarged with new chapter on Turbines and Hydraulic Motors..... 4 00
- MERRIMAN, M.—**A Text-Book on Roofs and Bridges. Part 1. Stresses in Simple Trusses. Part 2, Graphic Statics. Part 3, Bridge Design. Part 4, Higher Structure.** Octavo, cloth, interleaved, fully illustrated. Price of each part..... 2 50

**SCIENTIFIC BOOKS—Continued.**

- MERRIMAN AND BROOKS.—**Handbook for Surveyors.** A Pocket-book for the Classroom and the Field; including Fundamental Principles, Land Surveying, Leveling, Triangulation, and Topographic Surveying, with Tables. Pocket-book form. 12mo, morocco.. \$2 00
- MERRITT, H. S.—**Land Surveying.** A practical treatise on the science of land and engineering surveying, leveling, estimating quantities, etc. 268 illustrations, large 8vo, cloth. N. Y..... 5 00
- NAGLE, J. C.—**A Field Manual for Railroad Engineers.** 12mo, morocco.. 3 00
- PATTON, W. M.—**Practical Treatise on Foundations.** 21 full-page plates, illustrated. 400 pages. 8vo, cloth..... 5 00
- PATTON, W. M.—**A Treatise on Civil Engineering.** 8vo, cloth..... 7 50
- PENMAN, W. E.—**Land Surveying** on the meridian and perpendicular system, illustrated, 1 colored folding map, tables. 8vo, cloth. N. Y..... 3 50
- PHELPS, H.—**Practical Marine Surveying.** 8vo, cloth..... 2 50
- Plane Table, (The)** and its Use in Topographical Surveying. From the Papers of the U. S. Coast Survey. 8vo, cloth, illustrated. N. Y., 1884..... 2 00
- RANKINE, W. J. M.—**Applied Mechanics,** comprising Principles of Statics, Cinematics, and Dynamics and Theory of Structures, Mechanism and Machines. Crown 8vo, cloth, 15th edition. London, 1898. 5 00
- RANKINE, W. J. M.—**A Manual of the Steam Engine** and other Prime Movers, with numerous Tables and Illustrations. Crown, 8vo, cloth, 14th edition. London, 1897..... 5 00
- RANKINE, W. J. M.—**Civil Engineering,** comprising Engineering Surveys, Earthwork, Foundations, Masonry, Carpentry, Metal-works, Roads, Railways, Canals, Rivers, Water-works, Harbors, etc., with numerous Tables and Illustrations. 20th edition, revised by E. F. Bamberg, C. E. 8vo. London, 1898..... 6 50
- RANKINE, W. J. M.—**Useful Rules and Tables** for Architects, Builders, Carpenters, Coachbuilders, Engineers, Founders, Mechanics, Shipbuilders, Surveyors, Typefounders, Wheelwrights, etc. 7th edition. Crown 8vo, cloth. London, 1889..... 4 00
- RANKINE AND BAMBERG, E. F.—**A Mechanical Text Book,** or Introduction to the Study of Mechanics and Engineering. 4th edition. 8vo, cloth. London, 1890..... 3 50
- REED, LIEUT. HENRY A.—**Topographical Drawing and Sketching.** Quarto, containing 24 Double plates, Plain and Colored; besides a handy Table of Natural Sines, Co-sines, Tangents and Co-tangents; and other Tables required in both drawing and sketching. 4th edition. N. Y., 1895, Quarto, Cloth..... 5 00

**SCIENTIFIC BOOKS—Continued.**

REED, LIEUT. HENRY A.— <b>Topographical Drawing and Sketching.</b> Including Photography Applied to Surveying. Illustrated with plates, colored and plain. Fourth edition. 4to, cloth.....	\$5 00
REID, J. S.— <b>A Course in Mechanical Drawing.</b> 8vo, cloth, profusely illustrated .....	2 00
REINHARDT, CHAS. W.— <b>Lettering for Draftsmen, Engineers and Students.</b> A Practical System of Free-hand Lettering for working Drawings. 4th thousand. Oblong, boards.....	1 00
REINHARDT, CHAS. W.— <b>The Technic of Mechanical Drafting.</b> A practical guide to neat, correct and legible drawing. 36 pages, 62 text illustrations, 10 full-page plates.....	1 00
RICHARDS, F.— <b>Compressed Air.</b> 12mo, cloth.....	1 50
RIPPER, WILLIAM.— <b>A Course of Instruction in Machine Drawing and Design for Technical Schools and Engineer Students.</b> With 52 plates and numerous explanatory Engravings. Folio, cloth, 2nd edition .....	6 00
RISTEEN, A. D.— <b>The Metric System.</b> A handy pocket volume for facilitating comparisons between the Metric System and the American and English equivalents.....	1 50
ROPER, S.— <b>A Catechism of High Pressure or Non-condensing Steam Engines.</b> 12mo, tucks. 2nd edition, enlarged. Phila., 1897...	2 00
ROPER, S.— <b>The Engineer's Handy Book.</b> 12mo, illustrated, morocco tucks. Philadelphia, 1899.....	3 50
ROPER, S.— <b>Hand Book of the Locomotive, including the Construction of Engines and Boilers and running of Locomotives.</b> 12mo, tucks. Philadelphia, 1896.....	2 50
ROPER, S.— <b>Illustrated Hand Book of Land and Marine Engines.</b> 12mo, tucks. Philadelphia, 1896.....	3 50
ROPER, S.— <b>Use and Abuse of the Steam Boiler.</b> 11th edition. With illustrations. 12mo, tucks. Phila., 1896.....	2 00
ROPER, S.— <b>Hand Book of Modern Steam Fire Engines, including the running, care and management of Steam Fire Engines and Fire Pumps.</b> Illustrated, 12mo, tucks. Phila., 1896.....	3 50
SEARLES, W. H.— <b>The Railroad Spiral.</b> The Theory of Compound Transition Curve reduced to Practical Formulae and Rules for Application in Field Work, with complete tables of Deflections and Ordinates for five hundred Spirals. Pocket-book form....	1 50

**SCIENTIFIC BOOKS—Continued.**

SEARLES, W. H.— <b>Field Engineering.</b> A Handbook of the Theory and Practice of Railways Surveying, Location and Construction, designed for Classroom, Field and Office Use, and containing a large number of Useful Tables, original and selected. Sixteenth edition. 12mo, morocco.....	\$3 00
SHUNK, W. F.— <b>Treatise on Railway Curves</b> and Location, for young Engineers. 12mo, tucks. Phila., 1890.....	2 00
SHUNK, W. F.— <b>The Field Engineer.</b> A handy book of Practice in the Survey, Location and Trackwork of Railroads, containing a large selection of Rules and Tables, original and selected, applicable to both the standard and narrow gauge, and prepared with special reference to the wants of the young engineer. 16mo, mor., 12th edition, revised. N. Y., 1899.....	2 50
TRAUTWINE, J. C.— <b>Field Practice</b> of Laying out Circular Curves for Railroads. 18th edition. 12mo, mor., tucks. Phila.....	2 50
TRAUTWINE, J. C.— <b>Civil Engineer's Pocket Book.</b> 12mo, 648 pp. 56th thousand, tucks. New York, 1900.....	5 00
TRAUTWINE, J. C.— <b>A Method of Calculating the Cubic Contents of Excavations and Embankments by the Aid of Diagrams,</b> Together with Directions for Estimating the Cost of Earthwork. Ninth edition, revised and enlarged. 8vo, cloth.....	2 00
UNWIN, W. C.— <b>Elements of Machine Design.</b> An introduction to the Principles of the Parts of Machines, etc. 8th edition, 12mo, cloth, illustrated. London, 1899.....	Part 1 2 00
1897.....	Part 2 1 50
VEGA, V.— <b>Logarithmic Tables.</b> Common Logarithms from 1 to 100,000 to 7 figures, logarithmic sines and tangents from 0° to 90° by seconds to 7 figures, conversion and refraction tables, etc. Half roan, N. Y., 1900.....	2 25
WADDEL, J. A. L.— <b>De Pontibus.</b> A pocket-book for Bridge Engineers. 12mo, morocco flap.....	3 00
WARREN, S. E.— <b>Elements of Plane and Solid Free-hand Geometrical Drawing.</b> For Draughtsmen and Artisans, and Teachers and Students of Industrial and Mechanical Drawing, with 12 folding plates and many woodcuts. 12mo, cloth.....	1 00
WARREN, S. E.— <b>Drafting Instruments and Operations.</b> In four divisions. Div. I.—Instruments and Materials. Div. II.—Fundamental Operations. Div. III.—Plane Problems and Practical Operations. Div. IV.—Elements of Taste in Geometrical Drawing. 12mo, cloth.....	1 25

## SCIENTIFIC BOOKS—Continued.

- WARREN, S. E.—General Problems of Shades and Shadows, formed both by Parallel and Radial Rays, and shown both in Common and in Isometrical Projections, together with the Theory of Shading. With folding plates, 8vo, cloth..... \$3 00
- WEBB, W. L.—Problems in the Use and Adjustment of Engineering Instruments. Third edition, revised and enlarged. 16mo, morocco ..... 1 25
- WEISBACH, DR. J.—Theoretical Mechanics with an introduction to the Calculus. Translated from the fourth German edition by E. B. Coxe, A. M. 8vo, cloth. 9th edition, revised. N. Y., 1889.... 6 00
- WHIPPLE, S., C. E.—An Elementary and Practical Treatise on Bridge Building. 8vo, cloth..... 3 00
- WILLIAMSON, R. S.—On the use of the Barometer on Surveys and Reconnoissances. Part I.—Meteorology in its connection with Hypsometry. Part II.—Barometric Hypsometry. With illustrative tables and engravings. 4to, cloth..... 15 00
- WILSON, E. B.—The Chlorination Process. 12mo, cloth..... 1 50
- WILSON, E. B.—Cyanide Processes for Gold and Silver Ores. 12mo, cloth 1 50
- WILSON, E. B.—Practical Mine Ventilation. For the Use of Mining Engineers, Students, and Practical Men. With plates. Fifth edition. 16mo, cloth..... 1 25
- WILSON, E. B.—Hydraulic and Placer Mining. 12mo, cloth..... 2 00
- WILSON, ROBERT.—Treatise on Steam Boilers. Their Strength, Construction and Economical Working. 7th edition, revised. 12mo, cloth. 1896..... 2 50
- WILSON AND FLATHER.—A Treatise on Steam Boilers. Their Strength, Construction and Economical Working. Enlarged and Illustrated from the Fifth English edition. 108 fine illustrations, tables, etc. Third edition. 12mo, cloth..... 2 50
- WRIGHT, T. W.—A Treatise on the Adjustment of Observations. With applications to Geodetic Work, and other Measures of Precision. 8vo, cloth..... 4 00
- WRIGHT, T. W.—Elements of Mechanics, including Kinematics, Kinetics and Statics. With application. 8vo, cloth..... 2 50
- WURTELE, A. S. C.—Standard Measures, of United States, Great Britain and France. 8vo, paper, N. Y..... 50

**VAN NOSTRAND'S SCIENCE SERIES.****18mo, Fancy Boards, 50 cents each.**

2. **Steam Boiler Explosions.** By Zerah Colburn.
4. **Proportions of Pins used in Bridges.** By Chas. E. Bender, C. E. 2nd edition, with appendix. Illustrated.
5. **Ventilation of Buildings.** By W. F. Butler. Illustrated.
8. **A Treatise on the Compound Engine.** By John Turnball. Illustrated.
10. **Compound Engines.** From the French of A. Mallet. Illustrated.
11. **Theory of Arches.** By Prof. W. Allan. Illustrated.
19. **Strength of Beams under Transverse Loads.** By Prof. W. H. Allan. Ill.
20. **Bridge and Tunnel Centers.** By John B. McMaster, C. E. Illustrated.
24. **A Practical Treatise on the Teeth of Wheels, with the Theory and use of Robinson's Odontograph.** By S. W. Robinson, Professor of Mechanical Engineering. Illustrated. Industrial University.
25. **On the Theory and Calculation of Cantilever Bridges.** By R. M. Wilcox Ph. B.
26. **Practical Treatise on the Properties of Continuous Bridges.** By Charles Bender, C. E.
32. **Cable Making of Suspension Bridges, as Exemplified in the East River Bridge.** By Wilhelm Hildenbrand, C. E. With Illustrations.
35. **The Aneroid Barometer—Its Construction and Use.** Compiled by Geo. W. Plympton.
37. **Geographical Surveying.** Its Uses, Methods and Results. By Frank de Yeaux Carpenter.
38. **Maximum Stresses in Framed Bridges.** By Prof. Wm. Cain, A. M. C. E. Illustrated.
41. **Strength of Materials.** By William Kent, C. E. Illustrated.
42. **Vousoir Arches Applied to Stone Bridges, Tunnels, Culverts, Groined Arches and Domes.** By Prof. Wm. Cain, C. E.
51. **The Telescope—Its Construction, etc.** By Thomas Nolan.
54. **Kinematics of Machinery.** By Prof. Kennedy. With an introduction by Prof. R. H. Thurston.
59. **Railroad Economics, or Notes with Comments.** By S. W. Robinson, C. E.
65. **Pocket Logarithms to four places of Decimals.**
72. **Topographical Surveying.** By Geo. J. Specht, Prof. A. S. Hardy, John B. McMaster and H. F. Walling.
77. **Stadia Surveying.** The Theory of Stadia Measurements. By A. Winslow.
83. **Mechanical Integrators.** By Prof. Henry S. H. Shaw, C. E.
88. **Beams and Girders.** Practical Formulas for their Resistance. By P. H. Philbrick.
91. **Leveling—Barometric, Trigonometric and Spirit.** By Prof. J. O. Baker.
101. **The Sextant and Other Reflecting Mathematical Instruments.** By F. R. Brainard, U. S. N.
104. **Van Nostrand's Table Book for Civil and Mechanical Engineers.** Compiled by Prof. Geo. W. Plympton.
107. **A Graphical Method for Swing Bridges.** By Benj. F. La Rue, C. E.
110. **Transition Curves—A Field Book for Engineers.** By Walter G. Rox, C. E.
114. **Manual of the Slide Rule.** By F. A. Halsey of the American Machinist.

**WEALE'S**

**RUDIMENTARY SCIENTIFIC SERIES.**

6.	Tomlinson. Mechanics.....	\$ 0 60
16.	Leeds. Order of Architecture.....	60
17.	Bury. Styles of Architecture.....	80
	(The two above Volumes bound together).....	1 40
18.	Garbett. Principles of Design in Architecture.....	1 00
20.	Pyne. Perspective.....	80
22.	Dobson. Art of Building.....	80
23.	“ Brick and Tile Making.....	1 20
25.	“ Masonry and Stone Cutting.....	1 00
34.	Lardner. The Steam Engine.....	60
40.	Gessert. Glass Staining. Glass Painting (in one volume).....	1 00
42.	Allen. Cottage Building.....	80
43.	Dempsey. Tubular and Iron Girder Bridges.....	80
44.	Dobson. Foundations and Concrete Work.....	60
45.	Burnell. Limes, Cements and Mortars.....	60
51.	Peake. Naval Architecture.....	1 40
59.	Armstrong. Steam Boilers.....	60
60.	Baker. Land and Engineering Surveying.....	80
76.	Heather. Descriptive Geometry.....	80
93.	Baker. Mensuration and Measuring.....	60
117.	“ Subterraneous Surveying.....	1 00
139.	“ The Steam Engine.....	60
164.	Winton. Modern Workshop Practice, 4th edition.....	1 40
171.	Maxton. The Workman's Manual of Engineering Drawing.....	1 40
186.	Field. Grammar of Coloring.....	1 20
195.	Lintern. Magnetic Surveying and Angular Surveying.....	1 40
213.	Dobson. Pioneer Engineering.....	1 80
219.	Burnell & Law. Civil Engineering.....	2 60
223.	Campin. Mechanical Engineering.....	1 00
239.	Scott. Draining and Embanking.....	60
245.	“ Agricultural Surveying.....	60
260.	Pendred. Iron Bridges of Moderate Span.....	80
269.	Tarn. Light; and Introduction to the Science of Optics.....	60
279.	Campin. Constructional Iron and Steel Work.....	1 40



# INDEX.

<b>A</b>	PAGE		PAGE
Abney's Hand Level . . . . .	287	Blackboard Dividers . . . . .	191
Adjustable Angle Mirror . . . . .	291	"    Set . . . . .	191
"    Curve Rulers . . . . .	182	Black Process Papers . . . . .	19
"    Horses . . . . .	195	Block Books . . . . .	31
Adjuster, Plumb Bob . . . . .	284	Blue Process Cloth . . . . .	19
Adjusting Keys . . . . .	102	"    "    Frames . . . . .	21
Air Meters . . . . .	305	"    "    Papers . . . . .	17
All Linen Tapes . . . . .	325	"    "    Trays for . . . . .	21
Alphabet Books . . . . .	226	Boards, Drawing . . . . .	192-202
Alt-Azimuth Compass . . . . .	288	Books of Alphabets . . . . .	226
Altimeter, Abney's . . . . .	287	"    Block . . . . .	31
American Drawing Paper . . . . .	6, 8	"    Cross Section . . . . .	32
"    Ship Curves . . . . .	173, 175	"    Field . . . . .	33
"    Tracing Paper . . . . .	16	"    Level . . . . .	34
Amsler's Integrator . . . . .	162	"    Profile . . . . .	31
"    Planimeters . . . . .	157-161	"    Round Writing . . . . .	230
Avalon Drawing Paper . . . . .	6, 9	"    Scientific . . . . .	329-340
Anemometers . . . . .	305	"    Topographical . . . . .	34
Aneroid Barometers . . . . .	294, 295	"    Transit . . . . .	33
Angle Mirrors . . . . .	291	Border Pens . . . . .	52
"    Prisms . . . . .	291	Boucher Calculator . . . . .	148
Architects' Levels . . . . .	268, 269	Bow Compasses . . . . .	40
"    Leveling Rods . . . . .	279-281	"    Dividers . . . . .	40-47, 90-92, 107
"    Slant and Basin . . . . .	223	"    Pencils . . . . .	40-47, 90-92, 107
"    Tapes . . . . .	322	"    Pens . . . . .	40-47, 90-92, 107
"    Transit . . . . .	271-273	Box Sextant . . . . .	289
Arkansas Stones . . . . .	206	Boxes, Color . . . . .	209
Arm Protractors . . . . .	130-133	"    R. W. Pens and Holders . . . . .	230, 231
Arrows . . . . .	283	Boxwood Clinometers . . . . .	292
Artificial Horizons . . . . .	290	"    Pocket Rules . . . . .	145, 146, 152-156
Artists' Drawing Tables . . . . .	192-202	"    Protractors . . . . .	135
"    Pencils . . . . .	235-240	"    Scales . . . . .	136-144
"    Water Glasses . . . . .	224	Brass Parallel Rules . . . . .	166
Attachments for Transits and Levels . . . . .	260	Bristol Board . . . . .	7
"    Solar . . . . .	261	"    "    for Patent Office . . . . .	7
		"    "    Protractors . . . . .	127
<b>B</b>		Brunton Pocket Mine Transit . . . . .	285
Band Chains . . . . .	311-313	Brushes . . . . .	219-222
Barometers, Aneroid . . . . .	294, 295	Bubbles . . . . .	290
Bars for Beam Compasses . . . . .	181	Builders' Level . . . . .	268, 269
Bath Trays . . . . .	21	"    "    with Compass . . . . .	268
Beam Compasses . . . . .	48-50, 101, 108, 115	"    Transit . . . . .	271
		Burgois Drawing Ink . . . . .	212

INDEX—Continued.

C	PAGE		PAGE
Cabinet Saucers .....	224	Compass, Miners' .....	302, 303
Calculating Instruments .....	147-151	"    Mining .....	303
Camel's-hair Brushes .....	219-221	"    Pocket, Drawing .....	36, 37, 100
Capitola Tracing Paper .....	14	"    "    Magnetic .....	296-298
Capped Thumb Tacks .....	205	"    Prismatic .....	304
Cardboard .....	8	Compasses, Beam .....	48-50, 101, 108, 115
Cases of Instruments .....		"    Drawing .....	35-37, 64, 65,
55-63, 71-85, 96-98, 109-113, 116-122		68-70, 94, 95, 105, 106, 114	
Castella Tracing Paper .....	15	"    Surveying .....	299-301
Celluloid Curves .....	170-175	Mesa Tracing Paper .....	14
"    Lettering Angles .....	176	Continuous Profile Books .....	31
"    Protractors .....	128	Copenhagen Curves .....	171, 172, 174
"    Edge Scales .....	139-144	• Cord for Plumb Bobs .....	284
"    Erasing Shields .....	238	Capitola Tracing Paper .....	14
"    Straight Edges .....	183	Cosmos Paper .....	17, 20
"    Triangles .....	169	Crane's Bond .....	14
"    T Squares .....	187	"    Pencils .....	237
Centrolineads .....	182	Cross Section Books .....	32
Chain Scales .....	137-140	"    "    Papers .....	27-30
"    Tapes .....	311-328	"    "    Tracing Papers .....	27-29
Chains, Measuring .....	282, 283	"    Staff Heads .....	288
Chalk, Marking .....	240	Crow Quill Pens .....	225
Charpentier Calculator .....	148	"    "    Penholders .....	225
Chartometers .....	145	Curve, Celluloid .....	170-175
Chinaware .....	223, 224	"    Mechanical Engineers' .....	170-175
Chinese Ink .....	213-217	"    Pens .....	52, 86
"    "    Slabs .....	223, 224	"    Railroad .....	179, 180
"    White .....	211	"    Rubber .....	170-175
Circular Protractors .....	135	"    Rulers, Adjustable .....	182
Cleaning Rubber .....	233	"    Ship .....	171-175
Clinometer Compasses .....	292	"    Special .....	175
Clinometers .....	293	"    Spiral .....	174
Clips, Spring .....	19	"    Wood .....	170-175
Cloth-backed Papers .....	11, 12	Curves, Zinc .....	180
Cloth, Blue Print .....	19	"    Logarithmic .....	174
"    Sombrio Solar .....	18	Cutters, Paper .....	206
Coddington Lenses .....	308		
Coloma Tracing Paper .....	15	<b>D</b>	
Color Boxes .....	209	Detail Papers .....	7-8
"    Slabs .....	223, 224	"    Pencils .....	235-239
Colored Pencils .....	240	Direct Black Process .....	19
Colors, Technical .....	210	Dividers .....	35-39, 41-47, 64-67,
College Slide Rule .....	150	90-93, 99, 100, 105, 107, 114, 115	
Compass, Alt-Azimuth .....	288	Dividers, Blackboard .....	191
"    Clinometer .....	297	"    Pocket .....	36, 100
"    Magnetic .....	296-301	"    Proportional .....	38, 39, 99, 115

INDEX—Continued.

	PAGE
Dotting Pens.....	53, 90, 103
Draughtsmen's Alphabets .....	226
Drawing Boards .....	192-202
" Board Trestles .....	195
" Inks, Liquid Indelible .....	211, 212
" Instruments .....	35, 121
" Fine German .....	103, 113
" French .....	115
" Super. German .....	87-102
" Superior Swiss .....	35-86
" Papers, in Rolls .....	7-12
" " Sheets .....	5, 6, 12
" Parchment .....	8
" Pens .....	
51, 52, 54, 86-89, 103, 104, 114	
" Pins .....	203, 205
" Scales .....	136-144
" Tables .....	192-202
" Tacks .....	203-205
Dumpy Level .....	270

**E**

Ebony Parallel Rulers.....	165
Eccentrolineads.....	182
Ellipses .....	178
Embankment Triangles .....	177
Empty Boxes for Colors .....	209
Engineers' Levels .....	246, 251, 270
" Transits .....	
241-245, 252-259, 262-267	
English Parchment.....	8
Erasing Fluid .....	20
" Shield .....	238
Erasers, Rubber .....	232-234
" Steel .....	229
Extension Tripods.....	277
Extra Fine India Inks .....	213-217
" Heavy Band Chains .....	311-328
" Thin Paper.....	17-20

**F**

Faber's Slide Rule .....	151
Field Books.....	33
" Glasses.....	309
File, Lead Pencil .....	206
Flag Poles.....	281

	PAGE
Flat Scales .....	136-141
" Wire Tapes .....	327
Flexible Leveling Rods .....	280
" Pocket Rules .....	145-146
Folding Rules.....	152-156, 322
" Trestles .....	195
Frames for Blue Printing .....	21
French Curves.....	170
" Instruments .....	115
Fry's Drawing Tables.....	197-202

**G**

German Instruments, "Superior .....	87-102
" " Fine.....	103-113
" " Sup'r, in sets.....	96-98
" " Fine, in sets.....	109-113
" Silver Parallel Rules .....	166
" " Triangles .....	169
Glass Ink Cups .....	224
Glasses, Water .....	224
Graduations of Transits.....	248-250
" Rods.....	279, 280

**H**

Hairspring Compasses.....	65, 68
" Dividers .....	35, 64, 66, 67, 93, 105
Hand Levels .....	287
Handles for Tapes .....	319-327
Handy Paper Cutters.....	206
Hard Rubber Drawing Tools .....	163-188
Hatching Pens.....	86, 103
Higgins' Drawing Board Mucilage .....	210
" " Inks .....	212
" Photo Mounter.....	210
Horizons, Artificial.....	290
Horn Centers .....	205
" Protractors .....	127
Horses for Drawing Boards.....	195
Hyperbolas .....	178

**I**

Imperial Tracing Cloth .....	12
Improved Drawing Pens .....	86
Indelible Drawing Inks.....	211, 212
India Rubber.....	232-234
" Ink Sticks .....	213-217

INDEX—Continued.

	PAGE
Indian Inks, Liquid .....	211, 212
Ink Erasers, Rubber .....	232-234
“ “ Steel .....	229
“ Holders .....	231
“ India .....	211-217
“ Liquid Drawing .....	211, 212
“ Slabs .....	223-224
Integrator .....	162, 163
Irregular Curves .....	170-175
Ivory Pocket Rules .....	152
“ Protractors .....	135

**J**

Jacob Staff .....	278
Japanese Ink .....	216, 217
Japanned Tin Color Boxes .....	209

**K**

Kern Slide Rules .....	149
Koh-i-noor Tracing Cloth .....	13

**L**

Lamp, Mining .....	301
Land Chains .....	282, 283
Lead Pencils .....	235-239
Lead Pencil Pointers .....	206, 228
“ Weights .....	207
Leads for Artists' Pencils .....	237
“ “ Instruments .....	102
Lettering Device .....	164
“ Pens .....	225
“ Templets .....	177
“ Triangles .....	175, 176
Level Books .....	34
Leveling Poles .....	281
“ Rods .....	279, 280
Levels, Abney's .....	287
“ Adjustable Y .....	246, 251
“ and Clinometer .....	289, 292, 293
“ Architects' .....	268, 269
“ Builders' .....	268, 269
“ Convertible Y .....	246, 251
“ Description of .....	248-250
“ Dumpy .....	270
“ Engineers' .....	246-251, 270
“ Hand .....	287
“ Slope .....	289, 293
“ Y .....	246-251, 268

	PAGE
Line for Plumb Bobs .....	284
Linen Tapes .....	325
Liquid Indelible Drawing Inks .....	211, 212
“ Water Colors .....	211, 212
Lithographic Compasses .....	102
“ Pens .....	225
Locke's Hand Levels .....	287
Logarithmic Curves .....	174

**M**

Magnetic Compasses .....	296-301
Magnifying Glasses .....	307, 308
Manheim Slide Rule .....	150
Map Measures .....	145
Manila Papers .....	7, 8
Metal Protractors .....	129-135
“ Scales .....	143
Metric Scales .....	138-143
Mounted Drawing Papers .....	11, 12
Mounting Board .....	8
Mucilage, Higgins' .....	210
Muslin-backed Papers .....	11, 12

**N**

Narrow Steel Tapes .....	319, 320, 327
Nests of Cabinet Saucers .....	224
Nickel-plated Instruments .....	114, 116-118
“ Tacks .....	204, 205
Numbering of Transit Divisions .....	248-250

**O**

Odometer .....	306
Odontograph .....	126
Office Drawing Tables .....	197-201
Offset Scales .....	137-140
Oil Stones .....	206

**P**

Paine's Tapes .....	319, 320
Pantographs .....	122, 124
Paper, American .....	6, 8
“ Avalon .....	6, 9, 11
“ Black Process .....	19
“ Blue Print .....	17-20
“ Cloth .....	12, 13
“ Cross Section .....	27-30
“ Cutters .....	206

INDEX—Continued.

	PAGE
Paper, Detail .....	7, 8
“ Drawing .....	5-12
“ Duarte .....	14
“ Encina .....	9, 11
“ Extra Thin .....	17, 20
“ Laguna .....	8
“ Manila .....	7, 8
“ Metric .....	28
“ Parchment .....	8, 15
“ Profile .....	25, 26
“ Protractors .....	127
“ Robles .....	10-12
“ Scales .....	144
“ Sequoia .....	6
“ Sombrio .....	18
“ Toana .....	10, 11
“ Topographical .....	30
“ Township .....	31
“ Tracing .....	14-16
“ Vegetable .....	14
“ Verano .....	15
“ Whatman's .....	5, 12
Paper Weights .....	207
Parabolas .....	178
Paragon Bristol Board .....	8
Parallel Rules .....	165, 166
Parcel Pens .....	231
Parchment .....	8-15
“ Drawing Papers .....	15
“ Tracing Paper .....	15
Parts for Instruments .....	121
“ Transits, etc. ....	260
Patent Office Bristol Board .....	7
Pedometers .....	306
Pen Holders .....	225
Pencil Pointers .....	227, 228
Pencils .....	235-237, 239, 240
Pens .....	225, 226, 230, 231
“ Hatching .....	86, 103
“ Ruling .....	51, 52, 54, 86-89, 103, 104, 114
Perfect Cross Section Paper .....	27-30
“ Profile Paper .....	25, 26
Perspective Lineads .....	182
Photo Mounter, Higgins' .....	210
Pillar Compasses .....	37
Pins, Drawing .....	203-205

	PAGE
Pivot Joint Instruments .....	64-98
Planimeters .....	157-161
Plotting Scales .....	138
Plumb Bob Adjuster .....	284
“ Cord .....	284
“ Bobs .....	284
Plummet Lamps .....	301
Pocket Alt-Azimuth .....	288
“ Aneroids .....	294, 295
“ Compasses, Drawing .....	36, 37, 100
“ “ Magnetic .....	296-301
“ Levels .....	287
“ Leveling Rods .....	279, 280
“ Magnifiers .....	307, 308
“ Mining Transit .....	285
“ Rules .....	152-156
“ Scales .....	152-156
“ Tapes .....	322
Poles, Leveling .....	281
Pounce for Tracing Cloth .....	13
Powder for Tracing Cloth .....	13
Prepared Blue Process Cloth .....	19
“ “ “ Papers .....	17
Preserving Tubes for Paper .....	19
Pricker .....	53, 54
Print Frames .....	21
Prismatic Compasses .....	304
Profile Books .....	31
“ Papers .....	25, 26
“ Tracing Papers .....	25, 26
Proportional Dividers .....	38, 39, 99, 115
Protractor T Squares .....	190
Protractors .....	127-135

**R**

Railroad Curve Protractor .....	127
“ Curves .....	179, 180
“ Pens .....	53, 54, 86, 103
“ Pencil .....	52
Reading Glasses .....	308
Red Chalk .....	240
Reynold's Bristol Board .....	7
Rods, Leveling .....	279, 280
Roll Drawing Papers .....	7-12
Rolling Parallel Rules .....	165, 166
“ Planimeter .....	161

INDEX—Continued.

	PAGE
Roof Pitches .....	177
Round Writing Books .....	230, 231
"    "    Pens.....	230
Royal Blue Print Cloth.....	19
"    "    "    Paper .....	17-20
Rubber, Curves .....	170-175
"    Erasing .....	232-234
"    Parallel Rules .....	165
"    Sponge.....	233
Rules, Parallel .....	165, 166
"    Pocket .....	152-156
"    Scale.....	151-156
"    Shrinkage .....	147
"    Spring Joint .....	145, 146
"    Steel .....	143
Ruling Pens .51,52,54,86-89,103,104, 114	

**S**

Sable Brushes .....	219-222
Safety Paper Cutter.....	206
Salt, Sombrio.....	18
Saucers, Color .....	223, 224
Scale Guard.....	144
"    Rules .....	151-156
Scales.....	136-144
"    in Sets .....	138-141
"    to Order.....	142
Scientific Books.....	329-340
Section Liners .....	125, 126
Set of Splines .....	181
Sets of Instruments .....	
55-63,71-85,96-98,109-113,116-121	
Sets of Scales.....	138, 141
Sextants.....	289
Ship Curves.....	171-175
Shrinkage Rules .....	147
Sight Compasses .....	297-302
Slabs, Ink and Color.....	223, 224
Slide Rules .....	149, 151
Slope Level .....	289-293
Solar Attachment .....	261
Sombrio Paper.....	18
Spiral Curve .....	174
Special Curve .....	175
Spline Weights .....	178
Splines .....	178-181

	PAGE
Split Tripods .....	276
Sponge Rubber .....	233
Spring Bows.....	40-47, 90-92, 107
"    Clips.....	19
"    Joint Pocket Rules.....	145, 146
"    Pocket Tapes.....	322
Spurs for Tripods .....	276
Stake Tacks.....	284
Stamped Steel Tacks .....	204
Steel Erasers.....	229
"    Pens .....	225
"    Pocket Rules .....	146
"    Spring Bows .....	40-47, 90-92, 107
"    Straight Edges .....	184
"    Tacks .....	203-205
"    Tapes .....	318-328
"    Triangles .....	169
"    T Squares .....	190
Stick India Ink .....	213-217
Straight Edges.....	183, 184
Students' Alphabets .....	226
Superior German Instruments .....	87-102
Surveying Compasses .....	297-301
"    Instruments .....	241-275
"    "    Description of .....	248-250
Suspended Pantograph.....	123, 124
Swedish Style Drawing Pens.....	54, 89
Swiss Instruments .....	35-86
"    "    in Sets.....	55-63, 71-85

**T**

Tack Lifters.....	205, 206
Tacks, Stake .....	284
"    Thumb .....	203-205
Tangent Screw Protractors .....	132
Tapes .....	318-328
"    Handles for.....	319-327
"    Measuring .....	318-328
"    Paine's .....	319, 320
Tape Reels .....	311-313
Technical Water Colors .....	210
Templet Odontograph.....	126
Text-book to Round Writing .....	230
Thacher's Calculating Instrument .....	147
Three-Arm Protractor .....	133
Three-legged Dividers.....	37, 38, 100, 105

INDEX—Continued.

	PAGE
Thumb Tacks .....	203-205
"    "    Lifters .....	205, 206
Tin Boxes, Japanned .....	209
Topographical Books .....	34
"    Paper .....	30
Township Paper .....	31
Tracer .....	103
Tracing Cloth .....	12, 13
"    "    Powder .....	13
"    Paper, in Sheets .....	14
"    "    "    Rolls .....	15, 16
Transit Books .....	33
"    Poles .....	281
Transits .....	241-244, 252-260, 262-267
"    Attachments and Parts for ..	260
Transparent Celluloid Tools ..	128, 169-189
Trays for Photo Printing .....	21
Trestles for Drawing Boards .....	195
Triangles, Celluloid .....	169
"    Embankment .....	177
"    Lettering .....	176
"    Roof Pitch .....	177
"    Rubber .....	168
"    Steel .....	169
Triangles, Wood .....	166, 167
Triangular Scales .....	143, 144
"    "    Guard ..	144
Tripods .....	276-278
T Squares, Celluloid .....	187-189
"    Steel .....	190
"    Rubber .....	188
"    Wood .....	184-190
Tubes for Preserving Paper .....	19
Tubular Beam Compasses .....	48

**U** PAGE

Unprepared Blue Print Papers .....	20
Upright Drawing Table .....	196-202
Useful Pencil Pointers .....	227, 228

**V**

Vara Chains .....	282, 283
Vegetable Tracing Paper .....	14
Vellum Cloth .....	12, 13
Vernier Protractors .....	130-132

**W**

Water Colors .....	208
"    "    Boxes .....	209
"    "    Brushes .....	219-222
"    "    Glasses .....	224
"    "    Technical .....	210
"    Color Liquids .....	211, 212
"    Glasses, Artists' .....	224
Waterproof Drawing Inks .....	212
Wax Crayons .....	237
Weights for Paper .....	207
"    "    Splines .....	178
Whatman's Drawing Papers .....	5, 12
Wheel Attachments .....	49
Whole and Half Dividers .....	38
Wind Gauges .....	305
Winsor & Newton Colors .....	208
Wire Tapes .....	319, 320
Wood Curves .....	170-175

**Y**

Y Levels .....	246-251, 268, 269
----------------	-------------------

MAR 17 1904



# L. & C. Hardtmuth's

## GREY & PINK

The Grey Pliable Rubber is soft and will be found invaluable for cleaning Drawings Engravings Crayons etc. without injury to either Tracing Paper or any other Delicate Drawing Material



# PLIABLE RUBBER

The Pink Pliable Rubber has perfect erasing qualities and is made to meet the demand for a harder rubber than the Grey Pliable. It is recommended for general erasive purposes.

IN BOXES OF 4, 8, 12, 16, 20, 24, 30, 36, 40, 60 OR 72 PIECES.

LIBRARY OF CONGRESS



0 019 934 592 8

